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THE PSYCHOLOGY OF JUSTICE

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Justice is the cardinal virtue of the social man. It has been extolled as the queen of all virtues, compared with which "neither the evening nor the morning star is so admirable." Paulsen describing it says: "Justice, as a moral habit, is that tendency of the will and mode of conduct which refrains from disturbing the lives and interests of others, and, as far as possible, hinders such interference on the part of others" (42, p. 599). The just man is the man who respects and jealously guards his own rights as well as those of others. Taken in this broad sense, justice, universal justice, as Aristotle called it, covers almost the whole field of social morality. To describe and analyze the sentiment of justice in all its multitudinous aspects, fascinating as is the task, is obviously beyond the scope of the present treatise. It was unavoidable that in my study much of this large vital theme should be left untouched. In not a few instances I have had to rest content with merely suggesting lines of thought yet to be worked out. In treating of the subject I have largely followed the rubrics indicated by the accompanying syllabus of the questionnaire prepared by Dr. G. Stanley Hall.

TOPICAL SYLLABUS, No. 29
(Academic Year 1909-1910)

Justice

Kindly note the age and sex.

1. From observation and memory will you kindly make a list of cases where boys and girls have been unfair or unjust in games, lessons, talk about others, or treatment of them.

2. Describe a few cases where you or others tried to set things right and make them fair and just again; and tell how you or others came out in this effort.

3. Should those who are very unfair to others always be exposed and punished or should they be let go free if they can? *i. e.*, have we responsibility to see that the unjust receive their due?

4. In what cases would you tell of an unjust act, and when not?

5. Give one good case or more where you have tried to punish or avenge an injury done yourself or your friends?

6. What is the best story or case of justice or unfairness you have ever heard or read of?

7. How differently do you feel about being unfair to playmates, teachers, parents, strangers, friends, or God? How about their being unfair to you?

8. Have you ever done anything you thought you ought to be punished for and really longed to be punished, and were unhappy and felt isolated until you were? If so, describe such a case?

9. Describe the greatest injustice you have ever suffered; how you felt and what you did.

10. Describe the greatest injustice you ever inflicted upon another: how you felt and what you did.

11. What do you think about the importance of the sense of justice in the young? How would you cultivate it?

12. What influences in home, school, church, and community tend to suppress its normal development?

13. Do you feel at the bottom of your soul that this is a just universe, where good is sure to be adequately rewarded, and evil punished in the end? Have you ever doubted this? If so, how did the doubt affect you?

14. Can one person really bear the penalties of another's fault and let the guilty one escape?

15. If you feel deeply guilty for some bad act you have committed, describe your qualms of conscience and what impulses you have felt in such cases?

16. Should we pardon or forgive and how far; or ask it of others and when?

17. Should we not avenge real injustice?

Will you kindly select some of the above questions suitable for different grades and ask pupils to answer them in a composition?

G. Stanley Hall.

Clarke University,
Worcester, Mass., Nov. 2, 1909.

The questionnaire brought in some 480 returns, which have kindly been placed at my disposal.[1] The main body of the returns is from normal school girls, and as such it represents a very limited circle of thought and experience. Moreover, the insignificant minority of male respondents put all comparison of sex differences wholly out of the question. Being placed at such disadvantages I have been careful through-

[1] My thanks are due to President G. Stanley Hall for this courtesy of placing these returns at my disposal, to those who helped us collect the material, and to the several hundreds who, at great personal sacrifice, took pains to respond to the questionnaire. It is also a pleasure to acknowledge herewith my indebtedness to President Hall for inspiration and encouragement, and to Professors William H. Burnham, Alexander F. Chamberlain and Dr. Theodate L. Smith for helpful criticisms and suggestions.

out not to draw too much from the material in question. However, in many respects the returns were of distinct interest and value, as may be seen, I hope, in the course of this study. Let it be said at the outset that I approach the problem with the spirit not of a doctrinaire, but of a student of psychology. To advocate any particular ethical theory is not my concern here. The present work is neither more nor less than a humble attempt, impelled by an intense dissatisfaction with the traditional casuistry, to restore the facts of the moral life to their natural setting, and thereby to gain some insight into their nature and meaning.

I. General Introduction

When we consider the stupendous fecundity of living organisms and then see how infinitesimally small is the number of offspring that reach maturity, we can form some idea of the pressure of the conditions of life. Amidst all sorts of difficulties and limitations, self-conservation means strenuous struggle and self-assertion. Very likely primitive consciousness originated in pain sensation (58, ch. 2). Pain calls forth actions, to be sure largely fortuitous at first, which have for their function the cessation of the painful experience. This may be effected either by fleeing from the source of pain or by its removal. In the course of such experiences, primitive pain is differentiated into fear and anger. With the advent of these emotions the gates of psychic life opened and the routine has put on a very exciting aspect. The struggles for space, air, food, shelter, and mate are no longer carried on in silence. All creatures groan and are in agony with the urgent impulse to live. The traits of character condemned to-day as "brutal" and "animal," together with other "angelic" qualities, have been evolved in the course of this world-old struggle for existence. Now man appears upon the scene as the superb animal of the sentient world, highly charged with the "ape and tiger promptings." Man, as Schopenhauer characterizes him, is the most complete objectification of the will to live, and is the most necessitous and jealous of all beings. His highly developed nervous mechanism makes man capable of rich and complicated psychic life. When these self-assertive beings are gathered together, the conflict of individual interests is inevitable. Man can little tolerate the encroachment of others upon his own interests and possessions, whatever he may do to others on his part. It is interesting to watch how slight an infringement of a right provokes disproportionate resentment. It appears that man learns how to get angry and jealous before he can pity and sympathize.

Watch children at play. The desire to win and excel renders their plays extremely exciting. Play is not always a peaceful occupation, but it abounds with temptations and opportunities to be mean and unfair. All sorts of tricks and devices are resorted to in order to win. Indeed, a certain amount of trickery is indulged in as a sort of necessary strategem. It constitutes, as it were, an integral part of play and little scruple attends the practice. Some even take delight in little tricks, and think themselves "smart" when undetected. But the situation presents a totally different aspect when viewed from the side of the cheated; for the stronger the desire to win and the keener the shame of defeat, the greater is the resentment for the unfairness of one's competitors. Such unfairness usually results in the breaking up of the play or in the ostracizing of the cheats. Again, the unwillingness and refusal to take one's share in the less attractive portion of a play is a grievance quite common among children. For instance, one will not be "it" when caught; another wants always to be the teacher at playing school. The question of who shall, or shall not, be the first, or "it," is of great moment, and occasions hot disputes. "To take turns" is a lesson which every individual has to learn upon entering group life. Reciprocity is an unwritten code of justice. J. H. Johnson's interesting account of the McDonogh Boys (30) may be read in this connection.

A glance at the general attitude towards cheating in lessons is also instructive. More than fifty different forms of cheating are reported in our returns. Some of them are very elaborate and ingenious; a few reveal somewhat serious forms of dishonesty.

Cheating in lessons is by no means uncommon among advanced students in colleges. Dean Briggs of Harvard is reported as saying: "The most anxious disciplinary work of the year was the struggle for the suppression of dishonesty in written work. This kind of dishonesty has baffled the authorities" (37). It is easy to conceive that when mere marks won in tests and examinations count for so much in deciding the standing of a student, and when the whole affair is more a matter of chance than of merit, circumstances might well induce a student to an act of momentary dishonesty. After all, examination honesty, as Dr. Hall says, does not represent "the finest type in the best field of this noble sentiment, justice" (22, II, p. 321). The atmosphere of the classroom is very different from that of the playground. Whereas in games and plays dexterity and adroitness are essential things and strategy finds justification to a great extent, truthfulness is the virtue most esteemed in school work. This makes cheating in lessons an intensely moral question. Those who have been led to dishonesty in their work experience a remorseful feeling, which is closely akin to that accompanying a deviation from truth, as in the case of lying. Just as every wilful distortion of simple truth is, in ordinary circumstances, unnatural and painful, so the cheats suffer much from troubled con-

science. Our returns on this point are very interesting; but, since the qualms of conscience arising from dishonesty in lessons do not, in my judgment, involve the question of justice, I need not dwell on them here.

By far the majority of our respondents think that dishonesty in class work wrongs other honest pupils. It is not the violation of rules of the classroom, or the disobedience to the teacher, or again the disregard of the traditions of the institution, that makes the practice essentially unjust. It is rather the fact that the cheats go not only unpunished, but even crowned with high marks and honor, while their more faithful, hardworking fellow-students receive scant or no recognition.

Prof. Barnes found a similar state of things among the university students whom he investigated (6). The chief arguments brought out by Prof. Barnes' respondents in condemnation of cheating were, that cheating wrongs honest students, and that it harms the institution. It wrongs honest students in that the cheat establishes a standard too high for any honest effort; it harms the institution in that by cheating the credit of the university would be impaired and consequently the value of its diplomas would be depreciated. Prof. Barnes laments that, "there is hardly a trace in the papers of that loyal devotion to Alma Mater of which we hear so much." "Even among university students," he continues, "the sense of the higher social self is only partially developed." (6)

Thus, cheating in games and lessons, trivial as it may seem at first sight, affords us opportunities to get some insight into the psychology of justice. Further, it would be of immense benefit to our understanding of the subject if we could genetically follow the growth of the sense of justice in children along these and many other lines.

In the struggle for existence the "will to live" becomes so intense and urgent that each individual strives for its satisfaction in the name of the right to live. Should he fall behind his fellows in the enjoyment of life, he feels as though robbed of his birthright, and loses no time in denouncing others on the ground of equality. The right to live, or the "natural rights," may be made roughly to include the right to the integrity both of body and mind, and the right to property. A bodily injury is the most overt and primitive form of injustice. It provokes intense anger and may lead to an act of retaliation. Murder, to this day, is requited by the death penalty. Not only is a direct injury to the body resented as a great offense, but also lack of the necessary means of subsistence is regarded as no less injustice. When this calamity comes in the form of some physical inclemency the cry of injustice is raised against Heaven; when it is due

to causes somewhat inherent in the existing social order, the social order is condemned, the condemnation usually falling upon those who are somehow or other exempt from suffering. In order that man may live he must work. "If any man will not work, neither shall he eat." But curiously enough this Pauline dictum does not always say the last word; for to work, or, in other words, to get a "job," is itself a problem by no means easy to solve. Thus the problem of work takes the form of the persistent problem of what shall I eat, and wherewithal shall I be clothed? Hosts of the unemployed raise their voices and cry out: "Give us work, give us work!" Even where their own laziness and apathy are to blame, persons imagine that they have full right in this matter to invoke Nemesis, the goddess of justice. Again, the workers demand a full share of the product of their labor, but the greed of the employers formulates the "Iron law of wages;" and the "war of classes" goes on and on. Then we hear another voice crying for a right to leisure and pleasure. With the increasing hustle and bustle of modern industry and commerce this call for leisure becomes louder and louder. "To be deprived of leisure is to be deprived of those things which make life worth living" (32, p. 111).

The presence of rivals arouses and intensifies the property sense. The distinction of 'mine' and 'thine' becomes punctilious. The things that are 'mine' are jealously guarded against intruders. This immense task of safeguarding private possessions is by consent turned over to the hands of the community and elaborate institutions and statutes have been devised in its service. The uneasiness arising from the desire for possession is so great and the vigilance it requires so strenuous that many have been led to seek peace and security in entire renunciation.

No less precious, indeed for the generality of men even more valuable, than material possessions is a good name or honor. Honor is the supreme thing in life. When it is gone life loses its meaning. Many have chosen death rather than survive honor. Nowhere else is an attack on a person more subtle and grievous. Well says the Bible, "Whosoever shall say to his brother, Raca, shall be in danger of the council; and whosoever shall say, Thou fool, shall be in danger of the hell of fire" (Matt. 5:22). In all stages of culture and at all times and places, man is as keenly sensitive to ridicule and contempt as to praise and exaltation. Abusive and defamatory words are never uttered with impunity. Once the person who received such an affront was considered justified by

law in putting the offender to death. Westermarck says, on the authority of Mommsen, that "throughout the whole history of Roman law an attack upon honor or reputation was deemed a serious crime" (65, II, p. 141). In the thirteenth century, evidently under the influence of chivalry, the plaintiff in an English local court claimed compensation not only for the "damage," but also for the "shame" which had been done him (65, II, p. 142). Once false accusation was regarded more horrible than actual murder. In the law of the later Roman Empire a person making a criminal charge was bound to suffer, should he fail in proving it, the very penalty he invoked upon his adversary (65, II, p. 142). Paulsen calls the love of honor "the impulse of ideal self-preservation which aims at the preservation of the self in consciousness, in our own consciousness as well as in that of others" (42, p. 569). It is but natural, then, that the slightest reflection on personal honor should provoke violent reactions. Thus it becomes incumbent upon each member of a social group to respect and defend one another's honor. To defend the cause of honor both for oneself and for others has been looked upon as the most sacred task that a person is ever called upon to perform.

The phrase "struggle for existence" is a rather unfortunate one in that it suggests an undue emphasis on the bloody and destructive aspects of life. The picture is certainly over-drawn which represents "life in a state of nature" as a long dismal ravage of wolves and tigers "red in tooth and claw." If thrusting, parrying, strangling, killing and devouring are one side of the struggle for life, love, sympathy, sacrifice and coöperation are the other side of the cosmic drama (63). The Hobbesian gladiatorial strife of each against all, and the gospel of mutual aid so brilliantly enunciated by Kropotkin (33), are the two phases of the cosmic process, the one as natural as the other. Such virtues as mutual regard, self-restraint, sacrifice and service, arise out of life's necessity and are strongly inculcated.

It may be rightly said that the chief burden of rules of conduct is the adjustment of the individual to his social environment. The task of ethics, for Schopenhauer, is "to bring into the lists a combatant equal or rather superior to egoism and malice combined" (49, p. 87 f). Hobbes makes the covenant of peace, which is the first and fundamental law of nature, the foundation of the moral life. The Leviathan is the moral god born of this covenant, who ushers in a reign of terror over the selfish masses (25). Each surrenders his own claims only on condition of reciprocal concession on the part of others. This law of reciprocity finds expression in public opinion and expectation, the violation of which incurs immediate censure and condemnation.

If the sense of justice finds its fountain head in anger, we have another source of the same sentiment in sympathy or compassion. It might appear paradoxical that this sentiment, which is a most uncompromising expression of the instinct of self-assertion, should be rooted in part in sympathy. The misanthropic Schopenhauer, who found in compassion the very basis of morality, could not but be profoundly struck with the mystery of its operation, although he conceived a very ingenious, and, let us confess, plausible enough explanation of it (49). The highly susceptible and imaginative nature of man enables him to enter closely into another's mind and share his weal and woe. In the light of modern anthropological investigations we are justified in believing that ever since man became man he has been sympathetic and human as well as pugnacious and aggressive. Or we might rather say that he is sympathetic because of, and not in spite of, his pugnacity. Now, hunger, cold, helplessness, weakness, and deformity move men with compassion as nothing else does (20). Here we find ourselves at once in the heart of the problem of social justice. We find everywhere the duty of liberality enjoined with much emphasis, while niggardliness is detested as liable to punishment. Usury and extortion are abhorred, and the oppressors of the poor meet severe condemnation. There is a good deal of poetic justice in the laws and customs of primitive societies, based upon the principle that, "There shall be no poor with thee." Take, for instance, such a case as follows (Exodus 22:25-27): "If thou lend money to any of my people with thee that is poor, thou shalt not be to him as a creditor; neither shall ye lay upon him interest. If thou at all take thy neighbor's garment to pledge, thou shalt restore it unto him, before the sun goeth down: for that is his only covering." Every seventh year Jehovah's release was proclaimed, when every creditor was expected to release what he had lent to his neighbors (Deut. 15:1-2). While reaping the harvest in the field or beating the olive-tree, or gathering the grapes in the vineyard, one was instructed to remember the sojourner, the fatherless and the widow, by leaving some remnant for their benefit (Deut. 24:19-22). Through a similar working of the human mind, the same happy idea suggested itself to the Chinese. In the Shi King, or Book of Poetry, we read:

> "Yonder shall be young grain unreaped,
> And here some bundles ungathered,
> Yonder shall be handfuls left on the ground,
> And here ears untouched:—
> For the benefit of the widow."
>
> (54, The Minor Odes, Decade VI, Ode 8.)

The basis of man's claim to the right to live lies in the simple fact that he is a man. In this respect "all men are created equal." But how remote from realization such a longing is! Modern industrialism involves problems of immense magnitude which meet the seekers of justice at every turn. There is an extreme inequality in the distribution of wealth. It is estimated that in America seven-eighths of the families hold but one-eighth of the national wealth, while but one per cent. of the families hold more than the remaining ninety-nine per cent (27, p. 44). The presence of an appalling amount of poverty is indeed challenging. Hunter estimates that in the United States not less than 10,000,000 persons are in poverty (27, p. 60). These millions are doomed, in Carlyle's celebrated phrases, "to live miserable, we know not why; to work sore and yet gain nothing; to be heart-worn, weary, yet isolated, unrelated, girt-in with a cold universal *Laissez faire*, . . . to die slowly all our life long, imprisoned in a deep, dead, Infinite Injustice" (10, p. 210 f). The campaign against child labor and the like, which blasts life in its buds, and renders family life impossible, figures largely in the program of social workers. Their sentiment finds expression in a rather curious way in such a movement as the National Consumers' League, which demands as the obvious right of purchasers, that the food purchased should be pure and clean; that the garment bought should be free from poisonous dyes and the germs of disease; and that "both food and garments should leave his (the purchaser's) conscience free from participation in the employment of young children or of sweaters' victims" (32, p. 210). The care of the destitute and defective has been carried on with such enthusiasm and devotion, that it is cynically remarked by some, that in order that one may live in ease and comfort now-a-days one has only to be born defective or deficient. The cause of the weak, economically as well as physically, is taken up in the name of justice. The best charitable works to-day are being carried on, not in any spirit of sickly sentimentalism, but with well-guided enthusiasm for seeing justice established among men. Says one of the most eminent workers in the field: "If at times the moral fire seems to be dying out of the good old words Relief and Charity, it has undoubtedly filled with a new warmth certain words which belong distinctively to our own times; such words as Prevention, Amelioration, and Social Justice" (2).

The established fundamental rules of conduct are but so many expressions of the sentiment of justice. The Golden Rule, As ye would that men should do to you, do ye also to

them likewise (Luke 6:31), or, in its Chinese formula, What you do not want done to yourself, do not do to others (34, Analects, Bk. 15:23), has the self-evidence of intuitive truth and the stringency of the categorical imperative. Sympathy lends benevolence the imperative character of a law, and saves justice from rigorism and gives it a genuinely humane touch.

II. Justice in Relation to Different Classes.

How differently do you feel about being unfair to playmates, teachers, parents, strangers, friends, or God? How about their being unfair to you? In our returns on this question the six classes of persons specified fall into two general groups with God, parents, and friends on the one hand, and playmates, teachers and strangers on the other. In point of respect paid, the former group enjoy unquestioned importance over the latter, towards whom one is disposed more readily to be unfair, and whose unfairness, in turn, does not hurt one so badly as when it comes from the other group. Morality is not of such a transcendent nature as has been imagined by the speculative moralists, but is of purely terrestrial origin, permeated with our emotivity. While this largely personal character of our conduct gives rise to much injustice, we do violence to human nature by entirely disregarding it, for to return good for good is a no less essential form of human justice than meeting evil with evil. "If ye love them that love you what reward have ye? If ye salute your brother only what do ye more than others?" To excel the "publicans and gentiles" is certainly a noble aspiration. But do we not say that "blood is thicker than water," and that "charity begins at home"? "It is the nature of the just to increase together with friendship," said Aristotle (4, Bk. 9, ch. 9). The Chinese doctrine of the mean teaches that, "the decreasing measures of the love due to relatives, and the steps in honor due to the worthy are produced by the principle of propriety" (34, Doctrine of the Mean, 20; 5). Many who state that to be unjust to a stranger is just as bad as it is to be so to one who is near and dear to us, are nevertheless, led to contradict themselves by modifying their statements with a "but," a "still," or a "however."

(a) *God.* As one would naturally expect, God—the Christian God, and parents are the last ones whom most of our respondents would think of ever offending. However, we do well to ask at this point whether in placing God first they have not been simply following conventionality. We know that man is preëminently sense-minded. He is most certain

of what he has seen with his own eyes, heard with his own ears, and touched with his own hands. That which transcends his empirical world must necessarily remain very vague and foreign to him. Thus the sense of divine presence is seldom so vivid that it carries with it all the certitude of reality. Only gifted visionaries and religious geniuses can transcend the world of hard facts into the presence of the Infinite. It is also possible that in a theocratic society the relations between God and His people sometimes assume the intimacy of the human family just as the prophet Hosea could conceive of the relation of Israel to Jehovah in terms of conjugal relationship. When rules of conduct take on the form of divine ordinances their observance becomes a matter of great scruple and their violation causes an intense sense of sin. But for ordinary sense-bound minds, the simple facts that God can not be 'seen,' and that He too may not 'see' us, are sufficient to render impossible anything like a communion with the deity. The child's crude conceptions of the deity, which have been won with great pains, soon fade away into the light of common day, and humanity looms ever larger in religious life. Unfairness to the least of one's fellowmen is declared to be nothing less than unfairness to God (Matt. 25:45). Of injustice on the part of God, I shall treat when I come to the section of this paper on cosmic justice.

(b) *Parents.* To answer parental care and love with filial affection is a generic response of the human mind. To be unmindful of the loving kindness with which our parents brought us up is justly called the gravest of "three thousand offences." The absolute trust that parents put in the goodness of their children naturally inspires the children to remain true and faithful to them. To have betrayed the trust of parents is the greatest humiliation. Perhaps nowhere has filial piety attained such development and sanctity as among the ancient Chinese. As has been well remarked, filial piety is not merely a characteristic but a peculiarity of the Chinese people (55). Filial piety is for the Chinese at the root of all virtue. It begins with the proper care of the body, and ends with the glorification of the parent's name by distinguishing oneself in life. "Our bodies—to every hair and bit of skin—are received, and we must not presume to injure or wound them;—this is the beginning of filial piety. When we have established our character by the practice of the (filial) course, so as to make our name famous in future ages, and thereby glorify our parents:—this is the end of filial piety" (26a, ch. 1). The social and political ideals and circumstances of the time made it possible to found morals on family ideals.

The princes of states, high officials, as well as the common people could be the most efficient by being filial. With changing conditions of life new ideals arise. But the dwellers in the Far-East do not cease to sing the praise of the love of parents, which, as a common expression has it, is higher than the highest peak and deeper than the deepest deep. How remote such an ideal is from an Occidental mind! To quote an American author: "In Western countries, when a son becomes of age he goes where he likes, and does what he choses. He has no necessary connection with his parents, nor they with him. To the Chinese such customs must appear like the behavior of a well-grown calf or colt to the cow or the mare, suitable enough for animals, but by no means conformable to *Li* (propriety) as applied to human beings" (55, p. 182). The classic teaching of filial piety found an even more congenial soil in Japan, although it underwent some marked changes there owing to the peculiar circumstances of the land of its adoption; for not infrequently filial duties came into conflict with the cause of loyalty, loyalty to the feudal lords and masters. In such a painful dilemma, however, precedence was invariably given to the latter (41).

Injustice on the part of parents, coming as it does from those in whom we put perfect trust, and from whom we expect nothing but goodness and favor, is extremely grievous and disturbing. To have one's integrity misjudged by those who ought to understand one thoroughly and sympathetically, to speak the truth and not be believed by them, and, what is more, to be falsely accused by them of some wrongdoing, is painful beyond measure. Unfortunately, childhood abounds, as our returns show, with unpleasant experiences of this sort. The offended child is angry, feels hurt, cries or sits in a corner without saying a word, finally becoming stubborn. Some secretly question the love of the parents. A girl of 12 even contemplated packing things up and leaving home; for then, she thought, her parents would miss her, and realize that she was not to be slighted. To our question (No. 11), What influences in home, school, church and community tend to suppress the normal development of the sense of justice, 124 out of 300 named favoritism as the most deplorable of all home influences. Parents are prone to incline in affection towards one particular child at the expense of the rest. In each family, one is likely to find a Joseph and, with him, his discontented brothers. The pet child attracts more parental care and enjoys more freedom and privileges than the rest. The struggle among children for parental affection is an exceedingly intense one. Each child feels that

he has an equal, or greater, claim upon his parents with any of his brothers and sisters. Thus, every action of parents towards their children is closely watched and weighed. Should there be the least violation of equity, the sense of injustice is instantly aflame. Sometimes such bitter experiences leave a lasting effect on the individual. A young woman writes, "Some of the most miserable times in my life have been spent because I thought my parents loved one of my sisters more than they did me." Others resent the father's treatment of his prodigal son in the Biblical parable (Luke 15:11-32) as cruelly unjust to the faithful, industrious elder son. Many grievances arise from administration of favors and punishments in home. In these matters the parents' attitude must be throughout steady and well principled, and not fickle or capricious. Lack of regularity makes a punishment unjust and deprives a favor of its grace.

(c) *Teachers.* From time to time complaints are made in our educational journals and elsewhere by "superintendents" of wide experience, that teachers are not respected and have but a very low standing in society. The same inference may safely be gathered from replies to our questionnaire. In 127 of our returns in which the six categories of people as specified in our question (No. 7) are graded in order of importance, the teacher comes last in 14, last but one in 48. In 23 she appears grouped with companions and strangers, while in 31 she comes next to parents and God, and in 14 in the same order with friends. Making ample allowance for the arbitrariness involved in the nature of our question and without insisting too much on the figures obtained, we may fairly say that the results given above are rather significant. This is all the more noteworthy when it is remembered that our returns are largely from normal school students who have, for good or ill, set their hearts on the teacher's calling. Of course individual differences are marked in pupils' attitudes towards their teachers. When, under favorable circumstances there exists mutual understanding and sympathy, the teacher is held in great esteem. But on the whole one is tempted to believe that pupils' estimate of teachers is very low indeed. Many represent teachers as "people who are there to hear our recitations and to give us lessons." Teachers are looked upon more as task-masters or fault-finders than as educators and the makers of character. When the task of education is carried on in a soulless, commercial fashion, there is always a danger of its degenerating into drudgery. Sympathy and encouragement, gratitude and admiration, give place to threats and intimidation, hypocrisy and dishonesty. Unfairness to

teachers does not, under such conditions, seriously trouble the conscience; for teachers, on their part, are very often unfair to their pupils. To cheat is one thing, to cheat the teacher is another. Indeed, some say point-blank that they have a triumphant feeling in "getting ahead" of teachers. A girl of 19 even states that, "I feel that I owe the least to teachers, but I am inclined to give them justice in order that I may do what is right."

In this, perhaps as in some other countries, the teaching profession apparently carries with it little honor. Teaching is regarded as one of many "jobs," and the teacher as a person who does so much work for so much pay. Teachers are not only not respected in society, but are looked down upon, sometimes even with pity as "fine fellows" in spite of their occupation and not because of it. Diverse factors converge to bring about this state of affairs. It may be that the ancient Roman custom where teachers were once chattel slaves has still a pernicious influence, and the teacher of to-day is made to suffer for the traditional teacher, or it may be that the teacher is somewhat like a hireling at the mercy of the school board, and the calling has become peculiarly repellent to ambitious minds. Very likely the question of low remuneration is the trouble; for certainly measured in terms of dollars and cents, the teaching occupation is anything but alluring. Lack of professional training and loyalty naturally tends to damage the dignity of the teacher. All these, reacting upon one another as at once cause and effect, conspire to aggravate the situation. Somehow or other, men and women of character, culture, and ability are loath to enter the teaching profession. The ambitious college youth is very likely to be offended on being asked whether he is going to be a teacher.

Such a state of things, be it confessed, is almost inconceivable to an Oriental mind. Thanks to the beneficent influence of Confucian teachings and, in Japan, to the precious traditions of Bushi, the love of culture and learning has been instilled deep into our minds. "If a man in the morning hear the right way, he may die in the evening without regret" (34, Analects Bk. 4; 8). As the minister of this *summum bonum* the teacher commands the honor and respect of all. He is not a utensil, but a man of culture and learning. Themselves belonging to the warrior class, the highest of the four social castes, and as the educators of warriors, teachers enjoyed the double prestige of birth and enlightenment. The respect paid them verged on reverence. When walking with the teacher care was taken not to step on his shadow! A maxim reads, "Thy father and thy mother are like heaven

and earth, thy teacher and thy lord are like the sun and moon" (41, p. 101). With all the baneful influences of growing industry and commerce, the happy traditions of centuries' standing are not likely, it is hoped, soon to suffer wreck.

(d) *Strangers.* In our returns, strangers form, as is naturally expected, the least favored group. The absence of mutual knowledge and understanding, not to mention any bond of affection, seems to justify such attitude. The thought that the chances are very small of ever seeing the same stranger again may perhaps lead some to act less considerately towards him; while, on the other hand, with a temporal removal of all social restraints there is a danger that the stranger fall into a state of relative irresponsibility. But it is also true that honor and good sense tend always toward fairness and kindness. One is instinctively averse to giving others a poor impression of one's personality. The fear, not altogether unfounded, of ungrateful and treacherous return make the use of a certain degree of caution and even suspicion towards a stranger necessary for self-protection. Strangers and newcomers are usually subjected to severe scrutiny before being received into confidence. There exists a vague, unconscious distrust of, and hatred against, members of other "tribes," nations, and races. However, it is highly improbable that groups of men should have ever lived as potential enemies in a state of predatory raids and pillaging. Louis Robinson's explanation of the shyness of young children as a reminiscence of a remote past when strangers and enemies were synonymous is far fetched, idle and unjust. Furthermore, a stranger amidst inconveniences and deprivations excites profound sympathy. Thus almost unbounded hospitality is extended to strangers. Without the least sign of grudge, without any claim whatsoever, food and shelter are shared with them. Many would rather suffer the pains of an empty stomach than to be guilty of the omission of hospitality (39). In many instances, hospitality forms the most important part of divine worship. The deity as the patron of justice took care of those unprotected such as the stranger, beggar and suppliant. It is not without significance that the god of strangers is the mightiest in the entire train of Zeus.

As showing the nature of moral ideal and judgment it is rather interesting to note how an apparently simple question like that of justice in relation to different groups of persons receives very diverse answers according to different ideals and traditions prevailing in a given *milieu.*

III. The Qualms of Conscience.

In what follows I confine myself to the consideration of such specific forms of the qualms of conscience as arise from an act of injustice done to others. Into the origin and nature of conscience I need not now enter.

Restlessness. A wrong done is not easily forgotten. It remains before one's own eyes and rankles. The sense of guilt deprives mental activity of its flow and freedom, and the guilty is obsessed by the memory of the act. Efforts are made, sometimes desperately, to divert one's attention from the unpleasant experience. Some take walks or other physical exercise; others hum or try to sing; still others have recourse to strong drink or drugs. Indeed, some are successful in working off the qualms of conscience in this way. They can banish the matter from their minds with relative ease. With other types of mind and in other instances the painful experience forms an emotional complex and becomes a center of association. Jung's association studies have beautifully demonstrated how apparently innocent stimulus words touch the emotion complexes and call forth unusually great disturbances in reaction (31). A stricken conscience is abnormally sensitive. It reads its fear and suspicion into every trifle. "My heart beats fast when some one approaches," "When I see any one coming, I fancy that they are coming to see me about the act," "I am always afraid that I have been discovered," "I imagine that everybody is looking at me, and talking about me;" these are some of the expressions which appear frequently in our returns. In persons with a neurotic tendency, these insistent ideas become fixed and imperative and receive elaborate systematization. Obviously, such mental states cannot but affect the body in a more or less marked degree. The complaint most commonly made is of the loss of sleep. The proverb, "A clear conscience is a good pillow," is no mere figure of speech. Appetite suffers much. Sometimes an ascetic tendency is marked. Nervous strain is so great that a slight sound is sufficient to make one start. There are some disturbances of the vaso-motor system. The heart beats, now faster, now it seems to 'go down.' Headache is a very common symptom. A guilty conscience leaves its possessor with a helpless feeling of shame. He is ashamed of, and disgusted with, his own weakness and stupidity. He seems in his own eyes small and mean; while, on the other hand, the person he offended is sometimes idealized as innocent, pure and perfect. When intense this self-pity may rise

to despair and utter abandonment. The sense of guilt and shame, together with the fear of detection and punishment, heightens the consciousness of others, whose presence becomes peculiarly painful. The wronged person is carefully avoided as the unpleasant reminder of one's fault. Some feel like hiding themselves and being alone. Others lack courage to face the world. They can not look straight in others' faces. Downcast eyes and hanging head are expressions of a guilty conscience. The following excerpts from questionnaire returns illustrate these various manifestations of the sense of guilt.

1. F., 19. My conscience becomes so sensitive that in every conversation I engage in, in every article I read, I find something that seems to be directed to me.
2. F., 16. My conscience begins to hurt me and I want to go away by myself and unburden my woes on nature. In extreme cases, I pray to God for guidance.
3. F., 18. I become nervous and cannot do anything until I have had a crying spell or go somewhere so as to distract my attention from the act committed. The pangs of conscience fill me with fear and divert my attention from everything else except that one act.
4. F., 24. When I committed a very wrong act my conscience would not let me be happy, nor could I rest. I felt as if everybody could see in me the act I had done, and I felt that I did not have the strength to face the world again. I lost freedom of thought and action, for every thing would continually turn to that act.
5. F., 19. When I have done anything for which I feel deeply guilty, I usually feel two opposite impulses, one of hiding myself from the person to whom I have been unjust, and the other of striving harder to do right. As the first is usually impossible, I try to act on the second impulse.
6. F., 19. My first impulse was one of contempt for myself. I despised myself for being so weak, and felt downcast.
7. F., 19. I feel ashamed of myself, and my conscience pricks me. I have felt a mighty impulse to give up trying to do right when I had done wrong thoughtlessly.
8. F., 30. I remember at 18 years of age, of doing a really unjust thing to a girl friend. I did not want to see her. I would not go to a social gathering if she were to be there. I even avoided her friends. I felt as if she were perfect and I a terrible sinner. This feeling continued until matters were set right between us.

Apprehensions. Not only does a guilty conscience give its possessor no peace, but it sometimes fills the person with fear and apprehension. Thus he imagines all sorts of misfortune and calamities befalling him. Several of our returns describe such experiences. Persons wonder, What would happen to them, Where would they go should they die without confessing the wrong or rectifying it? What would become of their parents or friends, to whom they were unjust? and so on.

The ideas of sin and suffering are so inseparably bound together that a sin-sick soul in anticipation of punishment apprehensively broods over the consequences of its deeds, just as in other cases it acknowledges as a merited suffering whatever misfortune overtakes it. Singularly enough the fear that suggests itself most commonly in such a moment is that of death. Here, it is very probable that the story of Hell with all its horrifying and grotesque features, which usually has an active hold on children's minds, has served as a suggestion. But apart from this nursery influence, it is also very likely that the soul in a depressed state becomes an easy prey to such morbid fears. Clinical records abound with instances of this sort. Dr. Cowles' patient, described in his remarkable paper on "Insistent and Fixed Ideas" (11), had scrupulous doubts as to whether some simple acts, like walking, dressing or undressing, were rightly performed, and felt obliged to repeat them. "She did this, however, only when unobserved, and then could not help it." In connection with these doubts there arose fears of harm, even of death, happening to herself or her relatives. Commenting on this particular form of her apprehensions, Dr. Cowles says, "Upon the mental plasticity of childhood strong impressions were made by unpleasant ideas about 'trance' and the horror of being 'buried alive.' Apprehensions for herself and relatives were engendered in this regard." But we also find such apprehensions manifesting themselves in normal individuals, as is abundantly shown by the following quotations from our questionnaire returns.

1. F., 19. It worries me so much that I think of it all the time and cannot sleep. Sometimes I think of dying and wonder where I would go when I die.
2. F., 18. I always wonder and ask, what would God feel about it, where would I go if I should die without having repentance? I invariably make some act of contrition and a firm resolution never to commit the act again.
3. F., 18. When I feel deeply guilty, I always become morbid, I brood over imaginary tragic happenings. For instance, I fancy that I am very ill. When a child, I used to imagine myself dead.
4. F., 16. When I have been unkind to my mother I imagine all sorts of dreadful things, such as, "suppose Mamma should die before I asked her to forgive me, what would I do? What if it should cause her to be sick at heart?" Then I resolve never to do it again.
5. F., 18. When quite a small child, I told my mother a lie. I remember plainly how sick I was. I had a headache, and mother was so kind to me that it only made me feel worse. I tried to tell her all about it, but could not. I wondered what would happen if I should die without confessing the truth to mother. This thought grew upon me so that I was sure that I was going to die. Finally mustering all my courage I confessed my falsehood and was forgiven and I recovered almost immediately.

6. F., 19. When a child, I remember going down in the cellar next door to us with two other children and drinking cider with a straw through the bung-hole of a barrel. For days and nights the act haunted me. I saw myself grown up as a thief, dreamed of prison cells, and even seemed to fancy myself in torment in Hell, as it was pictured to my childish fancy. I dreaded to have my mother know of what I had done.

Miss Jane Addams has the following account of an experience in her early childhood:

"I recall 'horrid nights' when I tossed about in my bed because I had told a lie. I was held in the grip of a miserable dread of death, a double fear, first, that I myself should die in my sins and go straight to that fiery Hell which was never mentioned at home, but which I had heard all about from other children, and second, that my father—representing the entire adult world which I had basely deceived—should himself die before I had time to tell him. My only method of obtaining relief was to go downstairs to my father's room and make full confession. I always went back to bed as bold as a lion, and slept if not the sleep of the just, at least that of the comforted" (3, p. 2 f).

Confession. Confession comes as a natural relief to a guilty conscience. Giving discharge to pent-up feelings, it works a wonderful cure, as we shall presently see. But confession is a costly step involving honor. In order to maintain one's standing in society, a certain amount of secrecy would seem to be absolutely necessary. Were I to speak out in public all my thoughts and deeds, I should in all likelihood be branded as a dangerous person and ostracized from society. For the same reason, public confession is never entirely free from hypocrisy. Even where truthfulness is observed, either by force or by the confessor's own accord, it is not without some serious moral danger to the confessor. Persons making confession under emotional excitation may not fully realize, just at those moments, all that is involved in displaying their own wickedness and shame before the public, but when it is once brought home to them after the excitement has abated, the thought of lost honor proves too trying and discouraging for the strength of ordinary character. For the sanity of personality self-deception in this particular regard may be said to be necessary to a certain extent. So strong is the "resistance" that the chief concern of the psychoanalyst is to put the individual off his own guard (18). Alienists tell us that very often patients come to them in great agony under the sense of sin, but that upon being questioned as to what the matter is they make ridiculously trivial confessions remote from the true cause of the trouble. The act of confession is justly called the most painful form of all punishments. To confess or not to is a serious question before which one remains undecided even for years. Thus one person had

been wavering between the alternatives for three years; another, who is a Catholic, suffered five years of torture because of the practice of the church to which she could not conform.

A third had been brooding over her unjust acts for more than two years, and our questionnaire was made the occasion of her confession, for she summoned her courage and apologized to the persons she wronged. The thoughts of losing one's own moral standing and of falling in others' esteem are indeed humiliating. To let the mother or the teacher know that one is capable of the meanness there may be involved in the offence is certainly painful. Then, there is the fear of punishment, which is largely responsible for children's lies. A rather strong tendency is found to justify oneself, to try to find some excuses for one's own faults. Thus the person is tossed about by the conflicting impulses of self-condemnation and self-justification as may be seen from the following examples.

1. F. Many times I would wish to tell the person and ask her forgiveness. Indeed, I would be on the point of telling fifty times and even get a few words out, but evade off to something else.
2. F., 18. Religion has been both a stumbling block and a consolation. For a Catholic, confession forms one of the fundamental doctrines. It was this that haunted me. I was truly sorry for the act but hesitated telling it to another. Because of this I suffered, as nearly as I can recollect, five years of torture.
3. F., 20. I feel that I ought to apologize to the injured person; but this is the hardest thing for me to do. If I could possibly show the person, by any other means than apology, that I am sorry, what relief would that be!
4. F., 19. When I became very angry at a girl I said very disagreeable things to her. Later I became very sorry, and went to her and apologized. This was the best punishment I could possibly have, for I always dislike to apologize for anything I have done.
5. F., 19. At the age of ten years, I stole some money from my mother several times, in fact for about six months, without being at all suspected of the act. Oftentimes, however, I wished that mother would find me out and punish me to quiet my conscience. Many times I made up my mind to tell her and let her punish me so that I might feel better, but each time my courage failed me. I could not endure the shame of having lost my mother's confidence in me.
6. F., 19. Something within me accuses me and urges me to right the wrong. There is also an opposite feeling which tries to excuse the wrong and justifies me.

In spite of all this repression and resistance the inner restlessness becomes greater and greater until finally the individual "can stand it no longer." He feels as though he must now confess. There seems no other way open of escape from the pangs of conscience. Like a crying spell, the impulse to confess comes irresistibly and secures a safety outlet for pent-up feelings which have now reached the bursting point.

Even when little suspected of wrong doing, persons are led to confession simply to secure relief. The brilliant success of the Freudian psychoanalytic treatment sheds a flood of light upon our understanding of the emotional life. Lack of normal outlet for the emotions, which, owing to their unpleasant nature, are repressed and driven out of consciousness, is, according to the Freudian school, at the root of neuroses. The new mode of treatment consists in discovering the suspected repressed emotional experiences and bringing them into consciousness in order to facilitate normal reactions to them. The treatment, we are further told, has no curative effect if somehow there is no *Abreagierung* of the emotions (18). This accounts for the cathartic value of confession. Confession secures discharge of repressed feelings and puts an end to all restlessness secretly borne. There follows a feeling of relief, which theology calls forgiveness, justification, reconciliation or what not. One feels as though a heavy weight had been lifted.

Primarily, confession has not so much to do with redress of the wrong as with seeking relief from pent-up remorseful feelings. As Dr. Cutten puts it, "the value of confession seems to be in getting ourselves fairly and squarely before ourselves, rather than in the influence on or of others" (12, p. 125). Hence any means which secures this relief is welcome. Very often confession is made, not directly to the person wronged, but to some other individual. Very often it is the mother who has to act as the confessor. Others give themselves up in prayer, some burst into crying, and some go to nature and pour out their souls. There seems to be much more in common in crying, confession and penitential prayer than is usually suspected. Confession is usually accompanied by repentance, and almost always implies the asking of pardon. Although the natural impulse is to seek some restitution for the wrong done, yet it happens that in many instances humble expressions of contrition are all that an erring person can do in atoning for his deeds. Hence the sayings: "A fault confessed is half redressed," "Confession of a fault makes half amends."

1. F., 17. I seem to have a burning sensation within me and a large quantity of blood seems to rush to my head. If the feeling becomes almost intolerable, I feel as if I must confess and ask to be forgiven.
2. F., 18. My face burns and my eyes droop. I usually try to sing or hum some song, but it is all in vain. I try to talk, but my conversation seems to fall flat. I remain in a very unhappy state with tears about to flow, until finally I confess the wrong, and then the painful feelings disappear immediately.

3. F., 22. When about ten, my mother forbade me to go to the beach alone. One day, however, when she was out, I disobeyed her and went to the beach by myself, but returned home before my mother did. She brought me several little things because, as she said, I had been so good. I felt so mean, yet I dared not tell and for two or three days I could hardly eat with the terrible deceit on my conscience. Finally I confessed.
4. F., 18. It has always made me feel better after confessing to some one when I did anything wrong. My mother was my confessor in my early years, but lately my comfort has come through prayer.
5. M., 21. When about eleven, I stole ten cents from my mother's pocket-book. Mother accused my sister of taking it and punished her for it. It troubled me much but not enough to induce me to confess. I felt how unjust I had been to my sister and it kept on troubling me until one day I told mother the truth about the matter.

Punishment, self-punishment. Like confession, merited punishment has a calming effect on a guilty conscience, and is acknowledged by the person as a relief. However, this is not to be understood to mean that one courts punishment and longs for it, for we may be fully aware that we ought to be punished for what we had done, and still may feel relieved and happy when we are not. When the merited punishment does not come, instead of being unhappy and miserable, we may be so heartless as to be tempted to laugh at our own folly to have worried so much for what could be got over with so easily. But the desire to put an end to the painful suspense due to inner qualms may lead some to look upon punishment as a fitting means to the end in view. One may be afraid of the detection of his wrong-doing, and yet may secretly invite it. Again, by undergoing punishment, one actually suffers for his misdeed. This gives him a sense of having paid, in some measure, for his offence and, in so far, balancing the scale of retributive justice. This mode of looking at the situation is very marked in children, as we shall see later in this paper (7).

When the merited punishment does not come or when it is not sufficient, some sort of self-punishment is not infrequently practiced. Owing largely to the influences of early education, children are often seen inflicting punishments upon themselves. But this is by no means confined to children. In its varied forms, self-punishment may be abundantly found among adults. It usually takes the form of depriving oneself of some privileges. Some abstain from having candy for a week or two, or for a month. Others refuse to enjoy their favorite dishes at dinner, or go without any dessert. Some go to bed an hour or two earlier than usual, thus cutting short their play

hours. Still others stay indoors the whole afternoon and force themselves to do all sorts of disagreeable tasks. These little efforts indicate how closely the ideas of sin and suffering, crime and punishment, are bound together in our minds. These ideas form links, as it were, in one psychic chain, which cannot be separated without violence. Dr. Cowles' patient, to whom I have already referred, became jealous of one of her schoolmates, beautiful in person and lovely in character. This jealous feeling developed into one of strong hatred. Under these circumstances, the original fear of harm which we have seen the patient had been suffering from, changed into the fear that harmful things might happen to her friend. This threw her into a state of severe self-condemnation as if she were guilty of desiring these harmful things to happen. Now she began to feel that she did not at all deserve all the comforts and kindnesses shown to her in the hospital. A denial of everything pleasant or desirable became binding. In the words of Dr. Cowles: "She had to make herself disagreeable and hateful to the people she liked the best and respected the most, just because they were sources of comfort to her" (11). "She had to speak unkindly to her favorite nurse, for example, and then cried because she had been compelled to do what would make her appear ungrateful" (11). The patient also felt that she had to deny herself, by way of punishment, of the comfort she derived from Dr. Cowles' visits. To quote again: "This became the prime issue in her struggle with her avenging conscience. She fought it for months, avoiding meetings with me, 'vowing' she would never tell me another word of her trouble, but just as often breaking her vows and talking freely whenever in my presence" (11). Finally the patient began to say that she must go from the hospital, her only hope and refuge; because, as she said, "I must be deprived of my greatest blessing."

These acts of self-denial, trifling as they seem, indicate further how delicate is the sense of the harmony of the inner life and its outward expressions. Man feels almost instinctively that contrition and worldly pleasures, however innocent, are irreconcilable. When the spirit needs fasting, even normal physiological functions, like eating, drinking, etc., not to say pleasures, are looked upon with abhorrence as something uncomely. Utter simplicity expresses the state of penance best. A person doing penance knows too well that luxury and merriment are not his lot. Of old, man put away soft clothing and wore a coarse garment of bark; and sackcloth and ashes are penitential emblems. This same feeling of the necessity for expiation appears in the questionaire returns, *e. g.*:

1. F., 18. After I have done something wrong I have often wished my mother to punish me by denying me some privileges. If I still retained them, it often made me feel worse than ever. At times I have denied myself these privileges so as to punish myself.
2. F., 18. I have several times done things which I thought I ought to be punished for, and the more I thought about it, the more I wished to be punished, until finally I would go and do some work which I disliked very much.
3. F., 19. I have wanted to be punished and have occasionally inflicted childish punishments upon myself and I still do it.
4. F., 19. When I was about twelve I accidentally broke a very beautiful piece of China. Instead of whipping me, my mother talked very kindly to me. However, for many days I tried to save all my pennies to buy her a new one. In this way I thought I might punish myself by not having any candy.
5. F., 20. When about 13, I broke my mother's bracelet. I told her I did not know how it happened. In order to punish myself I would not eat any candy for a month.

Atonement. Perhaps the healthiest impulse that a guilty conscience feels is to make atonement for the wrong done. It marks the crowning effort of the penitent for the restoration of honor and justice. By this means is assured and perfected the relief and forgiveness resulting from preliminary acts of confession, which when unaccompanied by work may easily degenerate into indulgence and hypocrisy. Atonement, in its generic sense, is a vigorous and sincere thing. Much of our devotional and charitable works receive their incentive right here. In his highly suggestive study of religious phenomena, Dr. Leuba speaks with great emphasis of the feeling of unrighteousness and the efforts towards holiness as "the only apparent motive power in the deepest religious experiences" (35). The worst consequence of an unjust act is the sense of alienation from the wronged party, whether this be the deity or a fellow being. Just as confession aids in pacifying the troubled conscience and harmonizing the inner discord, so restitution helps to bring about the restoration of a shattered relationship. The sacrifice of self is the royal road to this end. Aristotle quotes an interesting remark of a Thessalonian who said: "In some particulars one must need act with injustice, in order . . . to do many deeds of justice." (Rhetoric Bk. I, ch. xii.) A devout Christian, who prior to his conversion had been leading the wretched life of a thief, would tell, for the glory of His name, the story of his former life as a sinner. He had made it a point, on certain days of the month, to walk through the town where his headquarters lay, with his pockets full of ill-gotten money. This he ungrudgingly gave out to as many poor and needy persons as he met in his round. This liberality seemed to have an expia-

tory virtue in it. In his delightful book, "Tales of Old Japan," Mitford narrates a little story of a swordsmith, which I cannot refrain myself from quoting here.

"At Osaka I lived opposite to one Kusano Yoshiaki, a swordsmith, a most intelligent and amiable gentleman, who was famous throughout his neighborhood for his good and charitable deeds. His idea was that, having been bred up to a calling which trades in life and death, he was bound, so far as in him lay, to atone for this by seeking to alleviate the suffering which is in the world; and he carried out his principle to the extent of impoverishing himself" (38, p. 50).

A number of cases illustrating the point under consideration are given in our returns. It often happens that after an act of disobedience persons become extremely obliging. A neglected duty induced one to work very hard the next time, even to the extent of doing unnecessary work. Another succeeded in appeasing her mother's displeasure by studying her lessons harder and thereby winning higher marks. Still another felt that she could not do too much for a girl friend whom she had long misjudged. A teacher punished one of her pupils too severely and afterward became very solicitous for that pupil. Of especial interest are the cases cited below where an act of injustice has developed a contrary kindly disposition. A girl, for instance, once treated a dog very unkindly, but this experience afforded an occasion of teaching her to be kind to all dumb animals. An unjust act to an old woman led a boy thereafter to entertain great respect for womankind.

1. F., 20. For several years I misjudged and ridiculed a person who is now one of my dearest friends because she was unconventional. Now every time she does something for me I feel ashamed of myself and feel that I cannot do enough to atone for my injustice.
2. F., 16. Often I have neglected to do my share of the work at home, I have done some work which was unnecessary only to clear my conscience.
3. F., 17. Once I did something which displeased my mother very much. By way of appeasing her displeasure I determined to work very hard in school and I got the very best marks I ever obtained.
4. M., 18. I once chummed with a crowd of young roughs. One night an old woman passed by us when one of the fellows called her a witch and threw a stone after her. And I did the same. I could not forget the incident nor that I stoned a woman. I could not tell anybody about it. From that moment, however, I have had a great respect for any woman.
5. F., 22. When still a child I dropped an ink bottle from my father's desk. In my great embarrasment, I called Leo, the dog, in and made him walk through the ink, while I hurried down from the room. Of course the dog was punished for my fault and I felt very sorry for him. From that time on I have tried

to help dumb animals, and thereby to make amends for the injustice I did to the poor Leo so many years ago.

6. F. A little newsboy meddled with the rope while we were jumping with it. I noticed this and the next time he did it, I ran after him. Just then I happened to have a sharp stone in my hand which I had been using for other purposes. When I caught the boy, I hit him with the hand in which I held the stone, although I did not mean to hit him with it. The boy began to cry and, to my great regret, I noticed that his head was bleeding. I took him in the house, washed his hands and face, and gave him something to eat. Every evening after that, when my mother gave me my usual penny I watched for the little newsboy and instead of buying any candy, I bought a paper from him to atone for what I had done to him.

The development of a contrary sentiment is beautifully shown by the studies of the Freudian school. Whenever any feeling or desire against a person occurs which is likely to meet the censure and disapproval of public sentiment, it is immediately 'repressed,' and in its place there arise others perfectly harmonious with current moral judgments. Thus unreasonable hostility towards a person meets repression and is concealed beneath the opposite sentiment of solicitude.

To sum up, the guilty conscience renders one restless. An emotional constellation is formed around the painful experience, and everything seen, heard or read becomes associated with it. The consciousness of others is abnormally heightened and in abjection the person seeks solitude. In such a state one sometimes becomes an easy prey to apprehensions of harm or death befalling oneself or the aggrieved party. Accompanying, and in turn aggravating, this mental trouble, there are some vaso-motor disturbances. Confession is a costly step involving honor. Jealous of personal honor, the conscience-stricken person yields to the impulse to confess only after strong resistance. It may even be years before he betakes himself to confession, being tossed all the while by conflicting impulses of self-condemnation and self-justification. But at length the pent-up feeling of remorse reaches its breaking point, and then the person feels as though he must confess. There follows a feeling of relief. Punishment balancing the offence in a measure is sometimes welcomed as a fitting means of putting an end to the painful suspense of the guilty conscience. When the merited punishment does not come, self-punishment is often practiced. In its naïve form, this consists in depriving oneself of some privileges and pleasures, curiously illustrating the close association of the ideas of sin and suffering, of crime and punishment. Perhaps the crowning effort of the guilty conscience is seen in its strivings for atonement. Forgiveness and reconciliation can only be secured through a sacrificial

life. Of especial interest is the development of a contrary character through the mechanism of the "repression."

We have thus passed in review some of the manifestations of the guilty conscience; but the question naturally arises at this point, What about the other side of the story? How do we feel and what do we do on being made to suffer injustice? We may refer to biographical data for light on this topic. The author deeply regrets that he cannot discuss this important theme, but hopes to make it the subject of a further study.

IV. Revenge, Punishment, and Forgiveness.

Revenge. Every close observer of animal life cannot fail to see the tremendous significance in the battle of life of such emotions as anger, jealousy, hatred and their allied forms, which the casuistic moralists would like to weed out of human nature. These so-called noxious emotions are the weapons, so to speak, with which an organism safeguards itself against injurious influences. Stanley justly remarks that, "The rise of the back-boned animal is not more important for physiological morphology than the evolution of anger for psychical morphology" (58, p. 131). Revengeful emotion was evolved from anger. An injury to self-feeling as well as a physical attack may excite its outbursts. While functionally revenge tends to secure the survival of the individual, psychologically it is without reference to either present or future. It is preeminently retrospective, not prospective, in its nature. It is the instinctive desire to get even with the enemy, to pay him back in the same coin, perhaps with interest. Steinmetz's view (59) that revenge is originally undirected, is vigorously and ably controverted by Westermarck (64 and 65).

Should we not avenge real injustice? Very likely the refined modern conscience would take offence at the question and condemn it as objectionable. Accordingly one who brings up such a query is rebuked for his thoughtlessness and lack of good sense. The highly specialized institutions of modern society have brought about some radical changes in modes of life, so that the men of the present age have largely lost a sympathetic touch with primitive folk ways. Moreover, the restraints of the somewhat sophisticated decorum of civilized society tend to too much rationalization and hypocrisy. It rather argues lack of insight and narrowness of view to treat slightingly psychic traits like revengeful emotion, which have so large a sanction from the cosmic process.

It is probable that in primitive societies self-redress was used in a larger measure than in civilized communities. Man took the law into his hands and used his own weapons to

wreak his wrath upon his adversary. The principle of an eye for an eye, a tooth for a tooth, reigned supreme. To say this is to detract nothing from the humanity of primitive peoples. It does not require a large amount of imagination to see that the whole matter was characterized by instinctive perception of justice. The complexity of modern tribunals does not necessarily mean the efficiency of the system. Complexity is one thing, competency is another. The failure to perceive this on the part of students has lead to great confusion and fallacy, much to the disadvantage of primitive peoples.

Naturally enough, revengeful emotion finds the most uncompromising expression in blood revenge, for it is the reaction of an organism against the infringement of the most vital of all personal rights. "The avenger of blood shall put the murderer to death." Prior to the introduction of modern tribunals the custom of blood revenge prevailed very widely, of course under certain regulations. To avenge the death of one's nearest kin was regarded as a most sacred duty. This led Professor Sumner even to think that the notions of duty and social obligation first originated here (61). At any rate, the task was so binding that should a man fall short of it, there was nothing left for him but taunt, ridicule and disgrace. On being asked by one of his disciples as to the course to be pursued in the case of the murder of a parent, Confucius expressed himself as follows: "The son must sleep upon a matting of grass, with his shield for his pillow; he must decline to take office; he must not live under the same heaven with the slayer. When he meets him in the market-place or the court, he must have his weapon ready to strike him" (34. p. 114). The vendetta in Old Japan is a classical custom (38). As we should expect, men of the warrior class were intensely jealous of personal honor. A reflection on honor, be it ever so slight, was the last thing they could tolerate. Not only the slayer of their over-lord and parents, but also one who insulted them was the enemy with whom they should not live under the same heavens. Revenge was undertaken under public sanction and with a religious zeal. Many a pathetic story relating to incidents of this sort has come down to us. Upon entering the holy task men forsook fame and fortune, broke off ties of affection, suffered all manner of hardships and deprivations. Nothing could dissuade them from their sworn mission. With singleness of purpose, they endured all, and when finally the duty was gracefully and nobly discharged, they betook themselves to *Harakiri* with the consolation of a fulfilled duty. To this day, although the custom has

long since become a thing of the past, this loyalty and devotion, this unswerving faith in the cause of honor and justice, command the admiration of all. In many tribes which are under the Mohammedan influence the practice of blood revenge is said still to prevail. In Corsica and Sicily one finds to-day vendetta in operation in complete form.

Sometimes revengeful emotion is so intense and implacable that the enemy is slain at the feet of the murdered person, or at the latter's tomb. Further, to gratify the passion even cannibalism is resorted to. Thus the Soloman Islanders are reported to be addicted to the practice as the deepest humiliation to which they can subject their adversaries. In Fiji, where the scarcity of food might seem to afford some excuse for the horrible custom of cannibalism, revenge is said nevertheless to be at the bottom of the practice. The eating of part of the enemy's body marks the climax of hatred and revenge. When all other means of vengeance are exhausted, but to no avail, recourse is had to suicidal acts. The enraged person sometimes even hung himself at the door of his foe, swearing to pursue him "unto the seventh birth" with the added malice and agility of a spirit. Peculiar dread and superstition attach themselves to the curse and will of a person dying under such circumstances. For similar reasons the spirits of the persons who have met a violent death are greatly feared. Westermarck (65) dwells with great emphasis upon the significance in primitive life of the belief in the efficacy of curses; Sumner (61) likewise makes much of goblinism.

Thus far I have dwelt on some of the more extraordinary expressions of revengeful emotion. But in more or less modified forms we find it busy at work all around us. Our newspapers teem with accounts of its effects. Probably a full quarter of all the blood that is being shed every day may be traced to this source, so that the very word revenge at once suggests undue severity and bloodshed. However, as denoting a mental state, it does not necessarily imply all this. Manifestations of wrath vary in degree and form. Moreover, the tendency is for emotional expressions to become less and less somatic, and more and more psychic. The greater portion of human conduct lies beyond the reach of legal authority, and is largely left to personal settlement, thus affording ample field for retaliation. 423 persons (F., 391, M., 32) responded to our question, Should we not avenge real injustice? By real injustice was generally understood such gross criminal offences as murder, fraud, stealing and the like. 40 per cent. answered the question in the affirmative. Revenge is just, in the first place, for the satisfaction it gives of having paid

back the injustice suffered. Theoretically many do not approve of the procedure, but they admit that should the case be brought home to them, personal feelings would be too strong to be silenced by reason. 36 per cent. curtly condemn the idea of revenge, while 11 per cent. give religious reasons for disapproving it. Popular arguments set forth against revenge are, that it is not only of no use, but aggravates the trouble; that an injustice received affords no excuse for returning it; that by avenging an evil one would be committing no less evil than the original offence; and the like. Others choose to remain true to the Golden Rule; still others sing the praise of the teaching of non-resistance. These are all excellent reasons, but, after all, may they not all be reflections of sober moments, which in storm and stress could be denied thrice before the cock crow? Do not even the believers in the principle of non-resistance hope and pray that the unjust may be punished in the court of conscience, if not hereafter on God's judgment day? So long as suffering and torment are prescribed for the wicked, retaliation is simply a question of time, and well may the righteous rest contented. The Lord will punish sinners in the fullness of his time. "Vengeance is mine, saith the Lord." "He who will have a good revenge let him leave it to God."

Sharp and Otto (53) made a study on one hundred male students of the average age of 20 who attended the short course in agriculture in the University of Wisconsin. The purpose of their study was 'to discover the maximum number that can be induced to approve of retaliation." Accordingly the most atrocious cases of murder and malice were chosen to evoke reactions. 92 out of the 100 would approve, under one condition or another, of the infliction of suffering or loss upon the wrongdoer, merely for the sake of causing suffering. Of these, 76 justified revenge on the part of the person wronged, before the question of punishment after death was raised. When ultimate impunity for the sinner was assumed, the number rose to 89.

Some of our respondents recommend the returning of good for evil, and the love of one's enemy, as the most effective way of revenge! By this means one heaps coals of fire upon the head of the unjust (Romans, 12:20), leaving him in utter shame and dejection. "Kindness and good deeds in return hurt the guilty conscience more than anything else," and "the person will come to see that you are a trifle above him, and are to be respected." Here we see a curious refinement of reaction against injustice.

As Dr. Hall justly says, "revenge seeks more than justice" (19). Now, it was impossible that man with his keen perception of justice should have given no serious thought to this fact. Indeed, the adoption of some system of compen-

sation as a substitute for reckless revenge was a very natural suggestion of human sympathy. For each offence, perhaps with the exception of murder, a definite amount of money was prescribed as its compensation. It is said that there is hardly any tribe in which it is not more or less customary to accept compensation and avoid a feud (62, II, p. 163 ff). Moreover, as Sutherland has pointed out, a settled life with possession of huts and other properties made the advantages of peaceful living more and more desirable. Nowhere could the consequences of rash and indiscriminate retaliation be more disastrous than in the case of blood-revenge. Naturally enough, accidental manslaughter was categorically discriminated from wilful murder. While no ransom may be taken for the life of a murderer who is guilty of death, justice pleads for mercy for a manslayer who has killed another unwittingly and unawares. Thus we have notably, but not exclusively, in Israel the provision of the cities of refuge where the unhappy manslayer could seek refuge from the avenger of blood and "declare his cause in the ears of the elders" (10a). This provision was made alike for all the children of Israel and for the stranger that sojourned among them. "Whosoever killeth any person unwittingly might flee thither, and not die by the hand of the avenger of blood, until he stood before the congregation" (Joshua, 20:9). It is at once refreshing and instructive to consider also the brilliant part played by primitive woman as the Peacemaker (10a).

Punishment. To a large extent, punishment is an expression of revengeful emotion, and retains much of its retaliative character. Justice demands that the culprit should suffer as the just requital of wrong-doing. Evil must recoil upon the head of its author. Justice demands further that the suffering be justly proportioned to the magnitude of the offence for which it is inflicted. This principle of duplicate or equivalent suffering has always been scrupulously observed. On this basis a very elaborate scheme of punitive justice has been formulated in many places, and the codes of many peoples bear upon them an unmistakable mark of the original feeling of retaliation.

Sutherland says: "Law originally was merely the body of customs that regulated by precedent the kind of retaliation or amount of substituted compensation to be exacted for a given injury" (62, II, p. 181). To quote from another author: "The retributive desire is so strong, and appears so natural that we can neither help obeying it, nor seriously disapprove of its being obeyed. The theory that we have a right to punish an offender only in so far as, by doing so, we promote the general happiness, really serves in the main as a justification for gratifying such a desire, rather than as a foundation for penal practice" (65, I, p. 91).

It is instructive to note, not for the purpose, however, of establishing a parallelism between the race and the child, that children's ideas of punishment also reveal this primitive retributive aspect, as has been shown in the studies of Miss Schallenberger (48), Professor Barnes (7) and others. To the child's mind, punishment means the paying back of the injury received.

Naturally enough, younger children conceive punishment in terms of corporal suffering. In Professor Barnes' study (7), 4,000 children gave as many as 2,801 specific punishments, of which 1,174, or 34% were whippings. To many, whipping is synonymous with punishment. This appears also in Miss Schallenberger's paper (48). Whipping is the most popular form of punishment with children, the popularity decreasing with age. In Professor Barnes' case, seven-year-old children gave twice as many cases of corporal punishment as sixteen-year-old children did. It is also interesting to note that threats and a forced promise, "not to do it again," are not mentioned quite so often as one would expect in view of the large use made of them at home. According to Miss Schallenberger, at six years of age none out of 2,000 would threaten or demand the promise; at twelve, 35 would use threats and 15 demand the promise; while at fifteen 85 would make use of threats, and 35 demand the promise. Punishment in a way balances the crime, and herein lies its justification. "The most common reason in children's minds for considering a punishment just rests on the feeling that an offense can be paid for in pain," says Professor Barnes (7). Every tactful kindergartner knows that one of the important lessons that a child has to learn is to accept all the inconvenience, discomfort, pain or disgrace consequent upon his deed as his desert. She assures us further that if the task is skilfully undertaken the child as a rule accepts all this without rebellion.

Along with the conception of punishment as a penalty for the evil done, there has been in operation from the very beginning a prospective view of it as a means to an end. The ultimate end in view may have reference to the prevention of evil in the future by means of the intimidation of the culprit or of the mass, or to the reformation of the erring person. As soon as the administration of punitive justice fell into the hands of a third person or body, the vindictive sentiment became greatly toned down and the whole affair came to assume a decidedly social significance. This social emphasis tends to depersonalize the offense and to put its objective side in the foreground of interest. The "materiality" of the crime becomes all-important sometimes to the entire disregard of the personality of the criminal. To free itself of hostile elements became the chief concern of communal authority. At times this work of self-protection on the part of society has been carried on with grewsome ferocity, as we see, for instance, throughout the eighteenth century. Abuse of capital punishment in those days is indeed shocking. This

state of affairs, however, could not last long. The protest against it expressed itself in the reform movement in criminal procedure. In France, the Declaration of Rights in 1789 laid down the principle that "the right to punish is limited by the law of necessity," and in 1791 the Assembly proclaimed that "penalties should be proportioned to the crimes for which they are inflicted, and that they are intended not merely to punish, but to reform the culprit" (26, I, pp. 111-116). Criminal law is admirably defined by Saleilles as "an economics of social defense adapted to the demands of the sense of justice" (47, p. 4). Punishment must fit the crime. A fit punishment is accepted as something merited and just, while too severe a penalty arouses the sense of injustice. Several in our returns state, in another connection, that the punishment inflicted upon Shylock in the Merchant of Venice is altogether too great, and think that Portia might have been less cruel and exacting in her decision. Likewise the treatment of Jean Val Jean in Les Miserables calls forth a strong resentment. I myself remember very well, some years ago upon reading the novel, how profoundly and painfully impressed I was with the perversion and stupidity of the courts of justice which could condemn a person without ceremony to the convict prison and brand him as "dangerous," all for stealing a loaf of bread under dire necessity—unemployment, a widowed sister and her seven little ones in hunger!

When human sympathy takes the interests of the offender into consideration a new meaning is read into the function of punishment. Indeed, here punishment as such ceases to exist. Not the prevention of the evil, not the intimidation of the offender, but the correction and regeneration of the individual becomes the chief concern. The psychology of crime is extremely complicated. A whole set of adverse social influences conspire to give rise to one particular criminal act. Very often it is hard conditions of economic life, a tainted heredity, a bad upbringing, an inadequate education, that is to blame. And most of these factors lie beyond the control of the individual. In such a situation the wrongdoer becomes an object of compassion rather than of condemnation. When Westermarck says that, "It is not to be believed that in practice the infliction of punishment is, or ever will be, regulated merely by considerations of social utility" (65, I, p. 91), and that the "idea (that the true end of punishment as the reformation of the criminal) merely emphasizes the most humane element in resentment, the demand that the offender's will shall cease to be offensive" (65, I, p. 88), the

learned author, in his enthusiasm to derive all moral ideas from the retributive emotion, seems to have fallen into the usual pitfall of single theory advocates. It is somewhat characteristic of our day that public censure falls not so much upon the culprit as upon the social factors underlying his offence. This is particularly so when one deals with juvenile offenders, who, placed in an adverse environment at a time when the plasticity of their minds is greatest, are thus misguided and fall. In such circumstances, nothing could be more absurd and cruel than to throw these unfortunate souls into the jail reeking with all pernicious influences. To meet this situation the juvenile court movement was called into being. It proposes to undertake the task of a loving parent for these misguided children. "The child is not to be reformed, but to be formed," is the slogan of this movement (36, p. 30). Sympathy demands that, in dealing with wrongdoers, we give full recognition to the culprit's individuality in its aspect of possibility, and that all ways and means be exhausted to hasten the birth of a new personality. Not to consider the culprit's future is unpardonable, monstrous and unjust. At the same time justice resents the sickly sentimentalism which shrinks from facing the principle of desert, and tries to excuse the crime and the criminal under this or that pretext.

Forgiveness. We come next to the question of forgiveness. Should we pardon or forgive, and how far? Since the answers to these questions depend so much upon personal temperament and ideals, it has seemed to me that we could perhaps approach the subject of our inquiry advantageously by examining the different attitudes taken towards the question by persons of different temperament and *Weltanschauung.* For this purpose I shall take up, in what follows, (a) Christianity, (b) Stoicism, (c) Buddhism, (d) Philosophical Idealism, and (e) Greek and Modern civic ideals, and examine very briefly their several verdicts on the question of forgiveness.

(a) *Christianity.* Although the virtue of forgiveness is inculcated in almost all ethnic books of morals, it receives especial emphasis in the teachings of Christianity, so much so that the phrase 'Christian spirit' may be taken as almost synonymous with a disposition of readiness to forgive an injury. It is quite natural that this should be so; for the Christian God is a loving, forgiving father whose heart goes out to one lost sheep more tenderly than to the ninety-nine in the fold. Likewise, the Master was a friend, not of the sound and well, but of the sick and erring. Nothing could be farther from Him than to throw the first stone at the

sinner. The strivings for divine purity and perfection against surging passions and manifold temptations bring a sense of personal imperfection home to each believer. Who is there so bold as to declare before the God who searches out the inmost secrets of our hearts, that "I am pure and spotless"? "There is none righteous, no, not one." The knowledge of personal weakness and sinfulness teaches one humility. This expresses itself on the one hand, in the need of, and the faith in, the divine mercy and grace, and, on the other, in forbearance with fellow-beings. "Judge not that ye be not judged." So in our returns, the Lord's prayer is given by many as affording the best answer to our question. If we do not forgive others, how can we expect forgiveness from God? Do we not pray, Forgive us our debts, as we also have forgiven our debtors? The parable of the unjust steward (Matt., 18:23-35) is mentioned in our returns as a case of the most callous injustice six times out of sixty, where biblical stories are given. Forgiveness becomes a reciprocal duty. So long as we want others to forgive us our faults, which are many and great, it is only fair that we should pardon others with equal generosity. Appeal is made here to the Golden Rule. We should ask pardon only of those to whom we have been merciful, in which case, some assert, we have a right to ask pardon of them.

The consciousness that all are children of one loving God enables one to be tolerant with others in their faults, and solicitous of their welfare. Again, the individual is of infinite worth, of far more value than the whole world and the treasures that are therein. God's eternal wisdom takes account even of the least among the sons of men. Indeed, the confession and conversion of a soul marks a great event in the course of creation. The believers are therefore enjoined to forgive their erring brothers not only seven times, but as often as seventy times seven. Nay, they are exhorted not only to refrain from returning evil for evil, but to love even their enemies!

The ideal of purity and perfection often makes one hypercritical and over-scrupulous in regard to one's own conduct, and fosters an undue severity and rigorism towards oneself. This may sometimes rise to the intensity of a morbid antagonism between spirit and flesh. This hostile attitude towards oneself leads one to be intolerant of one's fellow pilgrims. To see how religious enthusiasm may sometimes border upon hatred and revengeful emotion, one has only to glance over the titles of the discourses of the Puritan divines, like Jonathan Edwards (40). The thought of the torture of the

wicked in unquenchable fire did not at all impair the glory of the blessed, but on the contrary, it augmented their beatitude. Notwithstanding the biblical injunction to be thoroughly sympathetic with offenders (Matt. 18:15-17) intolerance, frequently resembling hypocrisy, is somewhat characteristic of the dealings of the Church with those who have gone astray.

(b) *Stoicism.* The Stoic literature is permeated with the spirit of benevolence and forbearance. "The most perfect and best of all characters, in my estimation, is he who is as ready to pardon the errors of mankind as if he were every day guilty of some himself; and at the same time as cautious of committing a fault as if he never forgave one" (43, Bk. 8; 22). Let us consider how naturally this spirit of forgiveness proceeds from the general tone of the Stoic system. A state of apathy, free from all emotional disturbances is the goal of Stoic culture. The emotions are disturbances of mental health, and are, under all circumstances, faults to be suppressed and eradicated by reason. Of all emotions, anger and hatred are especially detestable. To a Stoic, a person in anger, with glaring eyes, twitching lips, the hair bristling and the hands restless, must appear the most hideous and miserable creature on earth. To yield to the rage of passion is to forfeit the dignity of the mind. The wise man living in the light of reason puts no faith or hope in anything which it is not in his power to control. He has found the highest good in the realm of reason, unmolested by any extraneous forces. Since he has no vanity, the wise man is untouched by honor or dishonor. Slandered and ill-treated, he remains unperturbed, calm and serene like a mountain lake.

"Freedom consists in raising one's mind superior to injuries and becoming a person whose pleasures come from himself alone, in separating himself from external circumstances that one may not have to lead a disturbed life in fear of the laughter and tongues of all men; for if any man can offer an insult, who is there who cannot?" (51, Dialogues, Bk. 2; 19). "Should the wise man once lower himself to the point of being affected by either injury or insult, he could never feel safe afterward" (51, Dialogues, Bk. 2; 13). "Remember that it is not he who reviles you or strikes you, who insults you, but it is your opinion about these things as being insulting" (17, Ench. 20). "Consider how much more pain is brought on us by the anger and vexation caused by such acts than by the acts themselves, at which we are angry and vexed" (5, 11; 18).

Moreover, this life is fleeting. Why should we spend our days in anger, hatred and revenge? "Why do you not rather draw together what there is of your short life, and keep it peaceful for others and for yourself?" (51, Dialogues, Bk. 5, 43). Pessimism renders one magnanimous and enables him to

transcend petty concerns of life. The Stoics agree with the Socratic doctrine that knowledge and virtue are one. The good man is the enlightened man. This interpretation of virtue places the problem of sin and evil in a peculiar light. Sin and evil proceed from ignorance, from lack of understanding. "It is ignorantly and involuntarily that men sin" (5, xi; 18). It is of no more use to get angry at the ignorant than it is to be so with a maniac. Since virtue proceeds from knowledge, and since all men are capable of rational living, all that there is to be done with evil-doers is to pity them and teach them the way of reason. "Be well assured that nothing is more tractable than the human soul" (17, Discourses, Bk. 4; 9). "The wise man will not be angry with sinners. Why not? Because he knows that no one is born wise, but becomes so" (51, Dialogues, Bk. 4; 10). The wise man will treat wrong-doers as the doctor does his patients. The Stoics regard punishment as essentially a means of education, and not as a means of venting one's wrath. Furthermore, the Stoics see in humanity a republic of rational beings. All men are fellow-pilgrims to the Kingdom of Reason, and partake of one and the same life. Thus all merge in a common brotherhood. Such a notion of human brotherhood favors the growth of a most extended benevolence, gentleness and forbearance. "Human life is founded on benefits and harmony, and is bound together into an alliance for the common helps of all, not by terror, but by love towards one another" (51, Dialogues, Bk. 3; 5). "Will you not bear with your own brother who has Zeus for his progenitor, and is like a son from the same seeds and of the same descent from above?" (17, Discourse, Bk. 1; 13).

By way of summing up the tenets of Stoicism with particular reference to the subject under our consideration, I cannot do better than to quote the following passages from Aurelius. "It is peculiar to man to love even those who do wrong. And this happens, if when they do wrong it occurs to thee that they are kinsmen, and that they do wrong through ignorance and unintentionally, and that soon both of you die; and above all, that the wrong-doer has done thee no harm, for he has not made thy ruling faculty worse than it was before" (5, v; 22).

(c) *Buddhism.* Perhaps no one has ever drunk more deeply of the misery and vanity of existence than did the Buddha and his disciples, and they reached the conclusion that in this world of senses all is suffering and pain. Most painful is the body with insatiable, vain lusts and cravings. "After a stronghold has been made of the bones, it is covered with

flesh and blood, and there dwell in it old age and death, pride and deceit" (15, ch. 11; 150). Looking upon the world as a bubble and a mirage the Buddhists turn their backs upon it and "wander alone like a rhinoceros." Above good and evil, beyond the reach of surging passions and desires, lives the Awakened One in perfect peace and serenity. Little does he trouble himself with good and evil; for the slightest signs of emotion betray the mind into fetters and bondage. "If a man looks after the faults of others, and is always inclined to be offended, his own passions will grow and he is far from the destruction of passions" (15, ch. 18; 253). "He abused me, he beat me, he defeated me, he robbed me,—in those who harbour such thoughts hatred will never cease" (15, ch. 1; 3). "Whatever a hater may do to a hater, or an enemy to an enemy, a wrongly-directed mind will do us greater misery" (15, ch. 3; 15). Here we have exactly the same trend of thought that we have seen in the Stoic literature, expressed now with keener perception and greater insistence. The Buddhists, like the Stoics, give primacy to knowledge. Virtue is born of right understanding. Evil-doers are such simply because they lack insight into the nature of things, and set their hearts on this or that object. Hence, they need enlightenment, not terror, pity, nor yet condemnation. Again, the Buddhists are at one with the Stoics in seeing in wrongdoing the suffering, not of the wronged, but of the doer. Then, knowing that no harm can possibly reach him from without, the enlightened man should leave off petty animosity and ill-feeling towards would-be offenders.

(d) *Philosophical Idealism.* It is not without interest to see what philosophical idealism has to say on our question. Let us listen to Hegel; for he has his own way of looking at the situation. In his philosophical system, mind is in a pilgrimage from sensuous certainty to the absolute certainty of the understanding, from the isolation of its self-certainty to the truth of the community of spirits. Perfected mind, for Hegel, is the world of many-related minds. Hegel's Absolute, then, is essentially a man of effort and distinctly a moral being, whose strength and glory rest in his power of overcoming obstacles on the way to moral perfection. Upon these two fundamental conceptions of the community of spirits and its militant moral nature stands Hegel's philosophy of forgiveness.

By confiding the inmost secrets of the self to others, the confessor has renounced his separate, isolated self-existence, and proclaimed his particularity as cancelled. By so establishing himself as continuous with others, he asserts himself

as part of the universal, which is the only reality. On the other hand, by hardheartedly refusing pardon to one who confesses, one refuses to establish spiritual communication with another. Such an uncommunicative, isolated character, by its stiffnecked attitude, fails to see the unity of its self in another life and consequently cannot reach objective existence. It has no concrete reality. When however the two reconcile, and desist from their existence in a state of opposition, the ego is expanded into duality and comes to the certainty of itself in its complete relinquishment. "It is God appearing in the midst of those who know themselves in the form of pure knowledge" (24, p. 682). The erring one who confesses his sin thereby annihilates it. "The wounds of the spirit heal and leave no scars behind. The deed is not something imperishable, the spirit takes it back to itself" (24, p. 679). The spirit manifests its sovereignty over nature and history by its majestic art of making what has been done as though it had not occurred. The hardhearted one who refuses pardon to the penitent, on the other hand, thereby proves himself to be "a form of consciousness which has forsaken and denies the very nature of spirit; for it does not understand that spirit, in the absolute certainty of itself, is master and lord over every deed, and over all reality, and can reject and cast them off and make them as if they had never been" (24, p. 677). This idea of mind passing over from the isolation of its self-certainty, through pardon of the wicked, to the reality of the community, is considered as one of Hegel's most profound and beautiful developments.

(e) *Greek and Modern Civic Ideals.* When we turn to another type of ethical thought in which ethics merges in politics—politics in the best sense of the term—we find a wholly different estimate of human emotions. In the old Greek conception, moral duties pass almost entirely into political. Good citizenship is the measure of all virtues. The individual recedes into the background, and is subordinate to the larger interests of the community. Plato and Aristotle betrayed a true Hellenistic trait when they conceived ethics in terms of politics. Now, civic excellency requires not the suppression and extermination of the emotions, but their intelligent exercise; for in civic life, apathy and indifference become distinct evils. Unlike the Stoics, who succeeded them, both the Academicians and the Peripatetics insisted upon the education, and not the eradication, of human passions. When properly trained in the golden mean, our emotions become wholly virtuous, comely to a noble character. Thus Aristotle is not slow to acknowledge the significance of anger and

revengeful emotions. He says: "He who feels anger on proper occasions, at proper persons, and besides in a proper manner, at proper times, and for a proper length of time, is an object of praise" (4, Bk. 4, ch. 5). He did not hesitate to say that, "by proportionate retaliation civil society is held together" (4, Bk. 5, ch. 5). Nor did the excellency of meekness blind him to the danger of its excess. "The meek man seems to err rather on the side of defect; for he is not inclined to revenge, but rather to forgive" (4, Bk. 4, ch. 5).

In old Greece, man was, in every sense of the term, a political animal. In accordance with this social ideal, Greek education consisted in the making of citizens. The state itself was its organ, and civic duties its curriculum. To transmit the fatherland, not only not less, but greater and better, than it was transmitted to them, was the highest aspiration of Greek youths. The passing of the manhood examination marked the crown of their education (13).

The present is the age of democracy. The principle of a government by the people and for the people makes every single individual in it indispensable as a social force. It requires a higher standard of civic excellence than is necessary in despotism. Each member of the democratic community must share responsibility as well as benefits with the rest. The appalling amount of misery and ignorance, vice and fraud, existing in our midst is a most eloquent challenge to the integrity of the modern conscience. The traditional conceptions of purity and righteousness, all those which are individualistic and quiescent, prove sadly inadequate, when the existing state of things hardly allows one to conceive these virtues in isolation from larger social considerations. There are in society a set of adverse forces in operation, which do not at all guarantee the survival of the best. To combat these constitutes the heart of the moral problem of to-day. In speaking of the hindrances to good citizenship, Mr. Bryce enumerates indolence, greed and party-spirit as standing in the way to true democracy (8). He also points out that the vast size of modern states makes the individual citizen seem infinitesimally small, so that there is a danger of fostering an attitude of indifference and irresponsibility. Still more lamentable, the same author thinks, is the effect of over-much sentimentalism, which is somewhat characteristic of the modern man. Good citizenship requires one to be angry when anger is called for. Indeed, a large portion of civic duties consists in battling against injustice. Paulsen deplores the absence of such militant virtue as "one of the most painful omissions in the morality of the New Testament" (42, p.

613). But, in the new light of social conscience, the Gospel of the Kingdom of God has undergone a remarkable transfiguration, and with all the vigor that is still left in her, the Church espouses the cause of social justice. Miss Jane Addams makes an eloquent and pertinent plea for full and sympathetic recognition of youthful passion for reform as a supreme moral resource (1). Nowhere else does one find a simpler, more straightforward, unadulterated expression of thirst for righteousness than in the spirit of youth. Educators, who watch the signs of the times, are more and more coming to the conviction that the way to social salvation lies in a vigorous civic training of the young. This implies, among other things, the cultivation of genuine militant civic virtues through the sublimation of the natural emotions.

Should we pardon or forgive? Here, as elsewhere, the answer is largely determined by personal temperament and ideals. Those who, keenly conscious of human frailty, strive for salvation in regeneration, and those who, convinced of the vanity of existence, seek comfort in the tranquility of mind alike will answer the question with an emphatic Yes. These will find their minds in accord with the views of Christianity, Buddhism, or of Stoicism. The militant souls, on the other hand, in their eagerness to see the reign of purity and justice, will staunchly say, No! Nothing short of reformation will bring satisfaction to them.

V. Vicarious Atonement

The overwhelming majority of our 313 respondents do not think it possible for one person really to bear the penalties of another's fault and let the guilty one escape. It is true, a score of them cite cases where a person bore penalties in behalf of loved ones out of sheer devotion to them; but the stories usually end with the qualms of conscience the guilty ones had to undergo. By letting the innocent suffer in his place, the guilty one commits an added injustice. Moreover, vicarious suffering is only apparent. One hundred and thirty-four out of 313 are of the opinion that no real suffering is possible to an innocent person, because of his perfectly clear conscience. The sufferings of a sinner remain ever foreign to the just. "Whatever pain he may undergo is an expression of love, not an atonement for sin," as one puts it. Particularly in old days, voluntary vicarious suffering in behalf of lords, masters, parents, benefactors or elders was of rather common occurrence. Even vicarious suffering of a son for his father, in cases of capital punishment, was not unknown. Such devo-

tion and sacrifice spoke well for the son, though the father may have been a most depraved criminal. Here, however, what appeals to us is not so much the act of vicarious suffering as the courage, fidelity and genuine friendship exemplified in the deed. With the forgiveness and absolution of the original offence the heroic deed has nothing to do. So also the suffering and death of Jesus are looked upon by many as the consequence, on the one hand, of the unbelief and sins of the world, and of the love and devotion of Jesus, and through him, of God, on the other. The expiatory interpretation of the Cross is quite another thing.

It is rather striking that only 8 out of 313 respondents make allusion to Jesus' sufferings as possessing an atoning virtue. Of these eight, one says that Christ took upon himself the punishment of our sins, but that we too must suffer for them; "for real repentance means real suffering." Evidently, our respondents are familiar with the details of Jesus' life, of his passion and death, and the doctrines of the Church. Indeed some of them are apparently zealous Christians. Their silence, then, about the doctrine of the vicarious atonement of the Savior, is highly significant. However, when asked, in another connection, to give some of the best stories or cases illustrating justice or injustice (question No. 6), many responded with the crucifixion of Jesus, as the most tragic and unjust event in the whole history of humanity. The story received no less than 22 points out of a total of 200, of which number, again, biblical stories commanded 60. From this it can be plainly seen that the meaning of the cross as the emblem of Christianity lies elsewhere than in its supposed expiatory virtue. The extraordinary manner of Jesus' suffering and his violent and premature death in all his innocency and purity, love and devotion, calls forth no end of pathos in the hearts of men. Such a fate befalling so divine a person cannot fail to be the highest theme of meditation (21). The instinctive sense of justice, which sees in sin and suffering a causal chain, is lost in wonderment at the sight of the Cross, and is tempted to seek some hidden divine wisdom in the extraordinary event. May not all his sufferings be supererogatory, it asks? The idea of expiation might readily suggest itself, and possibly the doctrine of the vicarious atonement took its root in some such wholesome ethical impulse. But whatever the justification for it, pious souls resent any attempt to reduce this supreme revelation of the divine love into mere ecclesiastical formulae as little short of sacrilege.

Moreover, the sense of individual responsibility revolts against the notion of a scape goat. The unjust must suffer,

somehow, somewhere, sometime. An evil deed bears its fruit, it ripens, then the wicked suffer. "Not in the sky, not in the midst of the sea, not if we enter into the clefts of the mountains, is there known a spot in the whole world where a man might be freed from an evil deed" (15, ch. 9; 127). The deeds are immortal, and the law of Karma is abiding. It is against human nature to make light of one's faults. We have seen elsewhere in the present paper how seriously and earnestly a conscience-stricken person struggles under the burden of realizing that he has been unjust, and resorts to all possible means to obtain inner peace and reconciliation.

When the priestly writers in the Old Testament said that sin might be cleansed, washed away, wiped out and purified by means of a sacrificial offering, they were dominated by distinctly ritualistic conceptions. By sin was understood defilement unwittingly contracted. Purification required no repentance on the part of the offender. For a wilful moral offence sin-offerings were of no avail (56). The death of the sacrificial animal does not represent the death of the sinner. The sin is not transferred to the slain victim (9, p. 53). No exegetical support of the doctrine of the vicarious atonement can justly be derived from the New Testament. "No New Testament writer teaches the doctrine that the death of Jesus satisfies a demand of God that sin shall be punished, or is substitutionary in the sense that in it Jesus endures the punishment due to others" (9, p. 263 f). The Anselmic or judicial doctrine of the atonement, which regards the suffering of Jesus as the absolute, objective requirement of the punishment deserved by the sins of men, found itself bitterly opposed by what is generally known as the moral view of the work of salvation. Abelard, the historic champion of the latter view, regarding the work of Jesus, in life and in death, as a manifestation of the divine grace inviting sinners to repentance and love, entirely discarded the crude and irreverent notion that God could be appeased by the slaying of His innocent son. When later Thomas Aquinus came forward with the expiatory theory, we find Scotus close at his heels with a moral interpretation of Jesus' sufferings (46).

The history of the controversy that centered around the doctrine of the vicarious atonement may well be regarded as a record of the revolt of the moral consciousness against the external mechanical scheme of expiation. "This doctrine" (of the vicarious atonement), says Dr. Hall, "is the unpardonable sin of the church against both true religion and morals" (22, I, p. 269). The healthy, unsophisticated moral sense finds its best expression in the Dhammapada (15, ch.

12; 165): "By oneself the evil is done, by oneself one suffers; by oneself evil is left undone, by oneself one is purified. Purity and impurity belong to oneself, no one can purify another."

VI. Cosmic Justice

Moral intuition demands that virtue and happiness, sin and suffering, should go together. "Virtue is not left to stand alone. He who practices it will have neighbours" (34, Analects, Bk. 4; 25). Again, "Man is born for uprightness. If a man lose his uprightness, and yet live, his escape from death is the effect of mere good fortune" (34, Analects, Bk. 6; 17). Plato thought it an unpardonable misstatement to say that the wicked are often happy and the good miserable, or that injustice is profitable when undetected, but that justice is a man's own loss and another's gain. Poets and story-tellers who teach these things are accordingly anathemized in his Republic. The virtuous are befriended by the gods, and in the end all things work for good with them. Just as the idea of perfection readily suggests that of existence, furnishing the ground for the classic ontological argument; so the good, the true, and the beautiful are conceived as enduring, destined to prevail over evil. Popular sayings, fables, folklore and novels give abundant expression to this faith in the law of compensation. Despite all absurdity and grotesqueness of details as works of art, the literature which embodies and clarifies this creed of the folk-soul is always delightful, even to a most unimaginative, pragmatic mind. An act of disobedience invites calamity; inordinate desires work destruction. The faithful win the day, and the innocent find vindication. A dutiful daughter at the mercy of her cruel stepmother is at last blessed by Providence, while her sisters are lapped in luxury only to hasten the final disillusionment and doom. In all religious speculation, the Greeks contemplated Fate and the avenging Doom relentlessly taking their course to the bitterest end, and with an almost devilish obsession leading men along the road of sin to inevitable ruin. The endless chain of cause and effect, which rules over the vicissitudes of life, is elaborated in the Pre-Buddhistic Hindoo faith. The destiny of a soul in each new birth is determined by its deeds in a previous birth. Each action of the soul, good or bad, must work out its full effect without fail.

So deep-seated in the human mind is this sense of retributive justice, that, when overtaken by misfortune and calamities, seemingly without cause, the reflective mind turns inward upon itself in vexation, there to find sufficient justification for what has befallen it. It has been, and is still, customary to

look upon unusual calamities as consequences of some previous wrong-doings. Once the healer pronounced the cure of the diseased by saying, "Thy sins are forgiven." Certain diseases which are particularly hideous and repulsive, such as leprosy, have been ascribed to heavenly visitation. The miseries of existence, with its tiresome toil and labor, are likewise accounted for by some theologians on the assumption of original sin, which, by the way, Schopenhauer calls the only metaphysical truth contained in the Old Testament.

However, in this world of stern reality, if there is one thing plainer than another it is the utter moral indifference in the order of things. The forces of nature rage with remorseless waste of life, and the course of man is anything but smooth and easy. "It is not always May." How manifold man's wants, how strong his desires, yet how scant his satisfaction! The irony of fate mocks his pretentious aspirations. With thwarted wishes and frustrated purposes man's days are, as it were, a continuous oscillation between the two poles of hope and despair, of joy and sorrow. Why do sufferings come upon the righteous, while the wicked flourish in luxury and idleness? Have we been cheated and fooled in our faith in the moral law of retribution? This constitutes the problem of evil which is as old as creation, and each wayfarer has to answer in his own fashion this riddle of the Sphinx.

Buddhism knows no Intelligence or Divinity who created this universe and who holds it in the hollow of his hand. It knows no Being whom man could hold responsible for the presence of evil and misery in the world. The origin of suffering the Buddhists see in the genesis of individuality. The fateful idea of the self gives rise to vain passions and desires which are essentially evil and painful. Salvation consists in banishing the delusive notions of "I," "Mine," "Me," "Soul," "Future," and the like. Here evidently the problem of evil is explained and solved in purely human terms, and it hardly becomes a question of justice. To ask whether this universe is friendly to man is idle and meaningless. Schopenhauer, in whose writings pessimism finds a most direct, naked and pathetic expression, attempts another explanation of the problem. "Why," he asks, "and for what purpose does all this torment and agony exist? There is only one consideration that may serve to explain the sufferings of animals. It is this; that the will to live, which underlies the whole world of phenomena, must in their case satisfy its cravings by feeding upon itself" (50, p. 22). Again he says: "If you want a safe compass to guide you through life, and to banish all doubt as to the right way of looking at it, you cannot do

better than accustom yourself to regard this as a penitentiary, a sort of penal colony" (50, p. 27). From this point of view the presence of evil in life involves no question of justice or injustice of the world order. For Hartmann, this world is the best of all possible worlds, but it is worse than none at all. Pessimism, however, affords Hartmann no ground to charge the Absolute with injustice. A kind-hearted God can only desire the good of his creatures. If they are miserable, so Hartmann pleads the cause of the Absolute, it is the fault, not of His good-will, but of His power. Such being the case, all we, His creatures, should do is, not to rage against Him, or to take refuge in quietism, as Schopenhauer bids us to do, but to pity the Absolute and redeem Him from all this suffering! (23).

But in a theistic philosophy, like that of Christianity, which acknowledges one supreme, intelligent, loving Being who created this world—of misery and woe, and who, seeing his work done, "clapped his hands in praise of it," the presence of evil becomes at once the problem of cosmic justice. The naïve religious optimism which makes light of human sufferings does not meet the facts of life squarely in the face. The current disciplinary view of suffering proves altogether too shallow. It is tasteless and insipid "like the white of an egg." "Doth the wild ass bray when he hath grass? Or loweth the ox over his fodder?" Souls in affliction are filled with an overwhelming sense of the divine oppression and tyranny. Then the plaintiff rises in "native god-created majesty," and audaciously challenges the Mighty One for response. In answer to our question (No. 13), Is this a just universe? 280 out of 320 or 87.5 per cent. say that this is a just universe; while 40 or 12.5 per cent. take the opposite view. The unmerited sufferings of the innocent, the prosperity of the wicked, hypocrisy and fraud in schools, churches, and in politics, are responsible for the scepticism of the latter group. Many have at times been overtaken by more or less serious doubt about the matter, when the universe puts on a gloomy hue. During these moody hours of doubt and abandonment, Faith, the pole-star of life, hides herself behind a thick gloom. Trust in God seems to be shattered, and a feeling of estrangement and isolation ensues, sometimes leaving lasting scars on the individuals. An extended biographical study will furnish many cases where calamities and disasters have absolutely shattered the faith in a loving God. But, according to our returns, this painful experience is, in ordinary cases, transient, and does not play havoc with one's moral life for any length of time. The pendulum swings

back, and equilibrium is soon restored. The wholesome instinct which craves for more abundant and joyous life acts as the counterpoise, and is ready to repress the painful thought. The "tender-minded" can hardly bear the thought that this universal frame is without a mind. Compromises take place, and one humbly commends oneself to the wisdom of God, which passes understanding. Thus one reaches the startling conclusion that, All things work together for good.

The momentum of life is so strong that when hedged in by adverse circumstances man takes refuge in transcendental speculation, and sees his wishes fulfilled in the world of thought and fancy. The irresistible impulse to live more abundantly creates hope against hope and conceives the whole superstructure of future rewards and punishments. The afflicted look forward to the great Beyond, where the hungry in this life shall sit at sumptuous feasts, the naked be clothed in silk and velvet, the sick and the weak enjoy perpetual youth and strength, and Death, the chief of all foes, shall be swallowed up in victory. The naïve hedonistic view of the future existence as the exact reverse of this, after the fashion of the parable of the Rich man and Lazarus, brings immense consolation to many minds.

To the moral consciousness of a finer type, however, such popular doctrine of rewards and punishments seems altogether vulgar and unworthy. Persons, like Emerson, with delicate moral sense take offence at the preacher's talk on Heaven and Hell. "Ever since I was a boy," writes the Sage of Concord, "I have wished to write a discussion on compensation; for it seemed to me when very young, that on this subject life was ahead of theology, and the people knew more than the preacher taught" (16). For Emerson "the tools in our hands, the bread in our basket, the transactions of the streets," are all the document from which this universal law of compensation can be gathered. Justice is not postponed. The world is orderly like "a multiplication table, or a mathematical equation." All things are moral. "In nature nothing can be given, all things are sold." Those who look at the order of things in this light have little need of expecting retributive justice in the hereafter. Virtue which does not find its reward in itself is no virtue at all. Future rewards are superfluous, and are not demanded by justice. In greatest deprivations the virtuous can be happy, while the wicked are restless among plenty. How to detach "the sensual sweet, the sensual strong, the sensual bright, etc., from the moral sweet, the moral deep, the moral fair," has been a great lesson in the education of moral consciousness. Says Dr. Hall,

"There is nothing that is teachable in morals quite so important as that there is a power that makes for righteousness and against unrighteousness at the helm of the universe" (*22*, II, p. 268). The conviction that right and good gain the ascendency does not necessarily concern itself with the details of its fulfillment. It needs no superstructures of hedonism. While the belief, as it finds expression in Matthew Arnold's famous phrase, is extremely vague and indefinite in its contents, it is sufficiently definite to give life and zest to all human activities.

The vicissitudes of life necessitate a "transvaluation of all values." Now the mind assumes the lordship of the creation and rebuilds the universe after its own fashion. It is the discovery of the world of reason. Stoic education consisted in learning to wish that things should happen as they actually do. "Seek not that things which happen should happen as you wish; but wish the things which happen to be as they are, and you will have a tranquil flow of life" (17, Ench. 8). "Whoever, then, wishes to be free, let him neither wish for anything nor avoid anything which depends on others" (17, Ench. 18). The wise man does not ask Fortune for her gifts, but asks himself not to ask for them. Divested in this manner of all earthly dross, one looks upon the world and the gods, and behold! what a marvelous change one sees in the order of the universe. "The immortal gods are neither willing nor able to harm us" (51, Dialogues, Bk. 4; 27). "Like the kindest of parents, who only smile at the spiteful words of their children, the gods do not cease to heap benefits upon those who doubt from what source their benefits are derived. . . . Possessing only the power of doing good, they graciously and serenely bear with the faults of our erring spirits" (52, Bk. 7; 31). To pray to the gods that this or that event may not befall us is "the most ignominious degradation of humanity." He is base and vile who thinks ill of the order of the universe. In his folly, he wishes to improve his god instead of himself.

The Hegelians answer the problem of evil with their philosophical idealism, and say: "When you suffer, your sufferings are God's sufferings, not his external work, not his external penalty, not the fruit of his neglect, but identically his personal woe. In you God himself suffers, precisely as you do, and has all your concern in overcoming this grief" (45, p. 14). In this philosophical idealism, the problem of evil resolves itself into the question, Why does God thus suffer? We have seen, in another connection, that the Hegelian Absolute is essentially a man of combat. God suffers,

we are told, because without suffering God's life cannot be perfected, for virtue is most virtuous in the moment of victory over the tempter. "The justification of the presence in the world of the morally evil becomes apparent to us mortals only in so far as this evil is overcome and condemned. It exists only that it may be cast down" (45, p. 28). Those who are afflicted and smitten in life are summoned to take heart and join the holy war as "the minister of God's triumph." To quote again: "But suppose I resist the evil impulse, hate it, hold it down, overcome it, then, in this moment of hating and condemning it *I make it a part of my larger moral goodness.* The justification of the existence of my evil impulse comes *just at the instant when I hate and condemn it*" (44, p. 459). Such is the paradox of "perfection in imperfection."

With the advancement of science, natural phenomena have lost much of their ancient maliciousness. Everything is now known to take place, not according to the will and wisdom of a supernatural being, but according to impersonal, impassionate physico-chemical laws. Man has come to look upon the ways of nature with relative complacency and resignation, even foretelling her course with the pretentious exactness of a dictator. Instead of unwisely raging against the forces of nature, he now applies all his scientific knowledge to reducing to a minimum the disharmonies which exist between man and nature, and to securing the optimal conditions of life. From this viewpoint cosmic justice gives place to human justice. The problem has shifted from philosophy to ethics, from the cosmos to humanity. The main ethical forces today center around, and issue from, the ideal of social justice. Whether or not this is a just universe, certain it is that, in a large measure, life is what we make it. This is the creed of the modern empiricist (29).

VII. Conclusion

In the community of self-assertive beings like man, no question can be of more vital import than that pertaining to personal rights. The integrity of body, mind, and property is jealously guarded in the name of "natural rights;" the infringement of these, be it ever so slight, stirs the keenest sense of injustice. It appears that man's moral education began with anger. The psychology of justice begins with the psychology of injustice. Consciousness has a remedial function. Just as a well person scarcely feels the existence of the stomach, and only the sick live in constant awareness of it, so a man would never trouble himself with the question

of justice and injustice so long as everything goes on according to his wishes. Anger evokes fear in others, and fear leads them to prudence. Experience has taught man that happiness lies in the way of peace. This insight, embodied in the Golden Rule, represents the highest wisdom of life. This, however, is no mere utilitarian principle. Sympathy gives it a genuinely humane touch. Nothing moves man to compassion so profoundly as the sight of others suffering privation of life's necessities. Indeed, the problem of food and shelter constitutes the heart of social justice.

Moral intuition demands that virtue and happiness, sin and suffering, crime and punishment, should go together. But this world of stern reality presents abundant contradiction to the principle of desert; hence the persistent problem of evil. Many a soul has groaned under the painful idea of divine oppression, and despairing, cursed God and died. However, the momentum of life is so strong that often in adversity man can seek refuge in the realm of thought and fancy, and see his fond wishes fulfilled there. This psychic mechanism of wish-fulfillment, which is a protective means, is active in dreams, reveries, and religious speculation. The moral consciousness of a finer type, however, taking offence at the popular notion of future rewards and punishments, turns its eyes inward to find consolation and delight within itself. Men of this type do not quarrel with the order of the universe, but see in everything the unfolding of the law of compensation.

As has been shown in the section on the Qualms of Conscience, the suffering of the guilty conscience is intense. Peace comes back only after strenuous efforts for the restitution of the wrong. The sense of individual responsibility revolts from the notion of a scapegoat. Punitive justice demands that the evil should recoil upon the perpetrator. It even insists on the quantitative, as well as qualitative, equation of crime and punishment.

The ideal of social justice is more and more becoming the pivot for all ethical efforts. How to educate youth in the militant virtue of justice is the problem of moral education to-day. To ask pardon of others is extremely humiliating. The old sires were right who admonished the young not to do a thing for which they would have to bow their heads in apologizing. A high sense of honor leads one beyond fear and prudence to the love of honesty and righteousness, to the ideal of sportsmanship. Nothing appeals to the mind of youth so powerfully as the ways of the knight who detests taking advantage of the weak, and never leaves the oppressor unpunished. Much may be expected from the sublimation of the pristine

emotions of anger and sympathy through wise appeal to self-feeling. After all, the best moral education can only be achieved in coping with actual moral situations, whether in the playground, in the classroom, or in the market.

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THE PEDAGOGY OF MATHEMATICS

By A. O. Griggs

Mathematics is so hoary with age, has so woven itself into human history, has wrought so much for mankind, has so adapted itself to every aspect of human thought and feeling that it is little surprising to find it set upon a pedestal as a god to which human sacrifices are regularly offered.

Karpinski (13) expresses well the spirit of the devotee: "In American schools mathematics holds the commanding position of the regular subject, covering a period of years extending through the primary and second grade, and demanding continued application along one line of reasoning. When political divisions and other largely external facts of the lives of ancient people are deemed worthy of study, how much more so this mathematics, which not only has contributed to scientific advancement, but has also played so large a part in the development of the world."

Prof. Klein rounds out this tribute. "Apart from the fact that pure mathematics cannot be supplied by anything else as a means for developing the purely logical faculties of the mind, there must be considered here as elsewhere the necessity of the presence of a few individuals in each community developed in a far higher degree than the rest, for the purpose of keeping up and gradually raising the general standard. Even a slight raising of the general level can be accomplished only when some few minds have progressed far ahead of the average."

If these lofty ideals could be safely conserved to their time and place they might be commendable, but as they filter down through the grades they make serious havoc. To the lower grades mathematics comes prematurely, and later the college makes a mold for her elect, and into this mold young minds are ruthlessly pressed. There is a revolutionary process going on in the pedagogy of mathematics, but at present conditions are serious. The conservative spirit is strong even among the leaders. This is illustrated by the reluctance of Italy to give up the Roman numerals even when it became clear that they were holding her back. It is parelleled by our refusal of the metric system; *e. g.,* Nicholson (19) openly champions the English system.

This paper undertakes to indicate conditions that are mischievous and to point out a better way. Sometimes, perhaps, the personal equation has warped the perspective, even led into error; often the data are too few for final conclusions; but little is given untested.

"Our first step," says Spencer, "must obviously be to classify in the order of their importance the leading kinds of activity which constitute human life. They may be naturally arranged into:

"1. Those activities which directly minister to self-preservation.

"2. Those activities which, by securing the necessities of life, indirectly minister to self-preservation.

"3. Those activities which have for their end the rearing and disciplining of offspring.

"4. Those activities which are involved in the maintenance of proper social and political relations.

"5. Those miscellaneous activities which make up the leisure part of life, devoted to the gratification of the tastes and feelings." (27)

This makes an ideal introduction to the pedagogy of mathematics, in that the first requirement of an education is to make possible for the individual a livelihood, plus; and within this "plus" lies all cultural possibilities. In these latter days when the government seems to be slipping her constitutional moorings, we might wisely include the making of intelligent citizenship and the nurture of a civic conscience among the fundamentals of education. Whatever emphasis we put upon the cultural value of mathematics, this must wait upon her practical values and upon the practical values of such other subjects as are most essential to individual and social existence. While mathematics takes 13.5 per cent. of the time in the Prussian Gymnasium, it takes 23.5 per cent. of the time in the corresponding grades of our American schools (30). This difference may be due to the pedagogical system or to the use of the Metric system, but it challenges attention. Our problem is to find if there is a possibility of reducing that 23.5 per cent. time by any means, whether in mode of presentation or in the selection of material.

The place to begin our study is with beginners, and here discussions are most plentiful and most vigorous. "How are we to fit number and dimensional concepts to infant minds?" But one answer occurs: "Saul's armor cannot be made to fit David." The great Warren Colburn did nobly. He had the child teach him how to teach a child. As a result, 150,000 copies of his Arithmetic were sold annually in Eng-

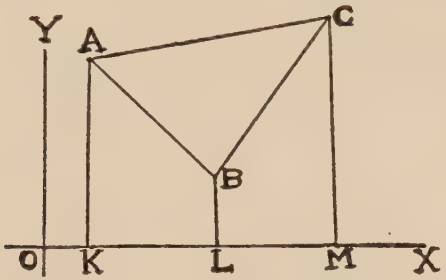
land and America. But if Colburn had listened more carefully and heard the soul of the child speak, he would have kept "hands off" for a number of years.

Before the writer can clear himself of the charge of radicalism in thus going counter to a strong public sentiment, much more attested data must be furnished; but his spirit of revolution did not spring up in a day. It must have lain semi-dormant in early school days. Our father was in "*loco magistri*" and showed how the nine table ran down hill, 9, 18, 27, 36, while the eleven table climbed up in a similar way; the eight table skipped steps going down, while the vigorous twelve table went up two steps at a time. The regular teacher soon had control and in a few years we were "doing" examples by the hundreds, among which miscellaneous examples held an important place. These were made tolerable by a girl rival. One type of example stands out in relief. "If four men can do a piece of work in seven days, how long would it take nine men to do the work?" Some succeeded in turning this mental back-handspring, but others found here their "*pons asinorum.*" We learned all the technical and obsolete tables, we studied permutation, allegation medial and allegation alternate, equation of payments, and partial payment, before promissory notes had interest for us. We found the surface and area of cones and pyramids, and frustrums of cones and pyramids, by blind rules; and few of us realized that we were training for logical thinkers. There have been marked reforms since then in textbooks and teaching, but even in modern textbooks there is found a residue of the antique, while notation and numeration still flourish like a green bay tree. Later came plane geometry, and here we met our Waterloo in failing to prove that a straight angle equals a straight line. That day of humiliation is still fresh in mind. Most boys to-day are spared that task.

Required mathematics met in the basement of Old South College "A donjon deep." Not till we ventured on elective mathematics did there come a gleam of beauty and elasticity of spirit. From this new vantage there came genuine satisfaction in helping a fellow senior pass off freshman trigonometry. Later came conics, and, unlike differential and integral calculus and differential equations, produced a chill. Fourteen years afterwards we took down the same old textbook and opened to the third problem, which is here given with some introspections:

"*Coördinates.*—To express the area of a triangle in terms of the coördinates of its angular points. Let the coördinates

of the angular points A, B, C, be X_1, Y_1, X_2, Y_2, X_3, Y_3, respectively



Draw the line AK, BL, CM, parallel to the axis of Y, as in the figure.

(1) $\Delta ABC = KACM - MCBL - LBAK.$

(2) now $KACM = \Delta ACM + \Delta AKM.$

(3) " $= \frac{1}{2} KM - MC + \frac{1}{2} KM - KA.$

(4) " $= \frac{1}{2} (X_3 - X_1) (y_3 + y_1).$

(5) Similarly $MCBL = \frac{1}{2} (x_3 - x_2) (y_3 + y_2).$

(6) and $LBAK = \frac{1}{2} (x_2 - x_1) (y_2 + y_1).$

(7) $\Delta ABC = \frac{1}{2} \{(y_3 + y_1) (x_3 - x_1) + (y_3 + y_2) (x_2 - x_3) + (y_2 + y_1) (x_1 - x_2)\}$

or omitting the terms which cancel," etc., etc. (25).

In equation (4) $\frac{1}{2} KM \times MC$ is evidently considered the area of triangle ACM, but why?

In equation (7) $\frac{1}{2} (y_3 + y_2) (x_2 - x_3)$ is evidently MCBL in equation (1), but why is it plus here and minus there? Of course old memories revived, and so the problem was taken to a man who had had " required college " mathematics but not this particular course. He was completely baffled. In reality this is as clean a bit of logical work as could be found. In the two previous examples, polar coördinates had been explained and there was nothing in the way of an amateur, except that a sharp cleavage line had been drawn. There was no first hint. The book repelled as something esoteric.

Of course this condition is rapidly changing, and we are threatened with predigested mathematical food, but perhaps this bit of autobiography will find some emotional response.

At a later stage mathematics were reviewed from the teacher's view-point and extended from first year primer to first year college. The next approach to the problem was a special

study which consisted of tests on school children in squads and alone; in visiting class rooms, consulting with teachers, quizzing adults in various walks of life, reviewing text books, and attempting introspections. These experiments are inadequate, data are all too few, no questionnaire was issued, although liberal use was made of other work in this line. Did not the current move so strong in one direction with so few back eddies, this premature study would not be offered. Enough to add that the early impressions have grown into convictions that are imperative.

Problems of the "Number Concept"

Shall we join the one school and, emphasizing the number concept, say: "Grouped objects are the basis for number ideas; measure is not a number concept" (9), or join the opposite school and say: "The dull or practical work in number should never be introduced until after work based upon different magnitudes?" (17). We may compromise and say: "There is no number without measurement and no measurement without number," but we shall not escape grave responsibility if we force arithmetic on young minds.

Benchara Branford (1) finds an evolutionary basis. "The path of most efficient development and power in the individual coincides in broad outlines with the path first traversed by the race in developing that particular kind of knowledge and power." The stages are as follows:

Particular arithmetic	Stage I. 5 cows + 3 cows = 8 cows. " II. 5 things + 3 things = 8 things. " III. 5 + 3 = 8.
Generalized arithmetic	Stage IV. 5a + 3a = 8a. " V. ma + na = (m + n) a. m, n & a, sign for numbers: (m > n.)
Symbolical algebra	Stage VI. ma ± na = (m ± n) a. m & n may be ±.

He does not tell us, however, when we are to begin assisting nature in recapitulating the history of the race.

The "Grube Method" had its day and its illustrious defenders, but the tide turned and it went out, but not before it had furnished one of its opponents an acceptable theme for a doctor's dissertation, a Quixotic attack that carried some grim humor.

Says G. Deuchbar (3): "The elementary number concept is not elementary for the child." Is that where the difficulty lies? We have on the other hand, a charming little textbook (9) which gives a picture of the three bears. "Which is the largest? Which is the smallest?" This is supposed to give ideas of dimension leading up to ratio and the unit of measurement. Are we not fooling ourselves? If history teaches anything, if experience teaches anything, the number concept is innate in the child and in the race.

In our pedagogical zeal we are trying to force culture, an already tropical growth, and we are reaping a crop of arithmomaniacs and neurotics. The instinct for number is strong, so strong that we have every inducement to leave it alone in these impressionable years of early life.

It is doubtful if magic squares and unique effects in combination of number do not foster the "dramatization of number," "number favorites" (such as Dr. Sanford found in guessing contests), "number forms" and "passions for counting." Philips (21) from his questionnaire returns found a remarkable tendency in this direction, not only with children but persisting into adult life.

This passion for number that shows in our modern life is in evidence all through history. Two illustrations must suffice. The Egyptians dramatized number (1):

"1" was an upright staff.
"10" was a priestly staff.
"1000" was a lotus flower or lamp.
"10,000" was a pointed finger.
"100,000" was a Burbal or toad.
"1,000,000" was a man in astonishment.

We may take our second illustration from that period about the sixteenth (13) century which saw the revival of interest in mathematics. Numbers were classified into lateral, *e. g.*, 3, 4 (the sum of the squares is a rational number), superficial *e. g.* 12, squares, *e. g.* 9, cubic, *e. g.* 8, solid, *e. g.* 12, (factors 2, 3, 2, not cubic). Then follow numbers, triangular, pentagonal, etc., circular (*e. g.* 5 and 6) defective, superfluous, perfect, sesquialtedal (1½:), sesquitertial (1⅓:1), sesquiquartal, superparticularis, subsuperparticularis, duplex-sesquialteral, duplex-sesquitertial, triplex sesquiquartel, super-bipartiens, sub-superbipartiens inversed. There were digits (1-9), articles (10^n), composites ($10^n + d$). Furthermore the textbooks of that period reveled in notations involving a score or more of digits. Long discussions were waged as to the right of "unity" to the rank of "number." Not only has number

carried symbolic burdens, but it has served as a handmaid of religious instruction. "What is the number of books in the Bible? What is the middle verse, the longest, the shortest verse, how long did ——— live?"[1]

An arithmetic (5) which in 1893 had run into the fifteenth edition, and boasted of 300 authors, gives 2825 examples; among the first is, "How many letters will it take to write 2,304,625 in words?" V. Mercante declares in all sobriety that "the degree of mathematical efficiency is inversely proportional to the time required for the working of the problems in the four fundamental operations of arithmetic and the reading of number." Smith says: "Everyone is conscious that he has got something out of the study of arithmetic aside from calculation and numerical application that has made him stronger, and that being so, it is perhaps just as well that we do not bother ourselves too much in attempting to define just what that is any more than we should attempt to define time or love or God or eternity." Another writes: "It (mathematics) is the lever with which the windows of the mind are pried open" (11). Meumann (18) takes quite another viewpoint. He says in substance that arithmetic justly holds first rank among subjects taught in our public schools, and drill in the elementary problems is of the utmost significance for those leaving school, whatever their station in life.

A review of the recent textbooks leaves no doubt of the condition of public sentiment. Notation and numeration are stressed in the early grades, child nature-study and drawing are loaded with number work: concentric circles, ladders, stairs and endless devices make vividly real the "number concept." Every effort is made to keep the concrete object in consciousness. Five is considered of little worth if it does not give a visual, auditory, or tactual image of "units grouped." An editorial in the Educational Journal (London) insists that the dot-grouping should continually change order to give a "discrete" idea of unit combination. The saner Miss Stephens in her paper says: "Young children pass with amazing rapidity to symbols and writing and have soon said goodbye to the concrete. Once the concrete is past it is better not to return to it for assistance." The reviewer replies that: "This can only mean that the dullards are left in the slough of despond; for how can they be rescued save by returning to the concrete?"

Are we finding the child's need, are we teaching him the right thing at the right time? No one can deny but that it is very convenient for even a child to find the page or chapter

[1] See Dr. Hall's Educational Problems, Vol. II, p. 352.

in a book, tell the time of day and make change, but apart from these responses to his small environment, very little arithmetic is needed.

Mathematics in the School Curriculum

The school curriculum is crowded, the teacher more so, and the need of some relief is urgent. Apart from a few zealous defenders of arithmetic for the value of its subject matter, there is a general agreement among educators. Of these Fitch (4) is a fair representative. "The direct utilitarian value, its value to the bread winner, has been overestimated. There is, however, the disciplinary value. It seems advisable to give the child some training in logic. But logic as a science is too abstract for him. Hence the school substitutes that subject, which, at the same time offers the best opportunity for this training. This is the more valuable, in that there is incidentally accomplished another result,—the keeping of the numerical machinery in use while the child is in school, so that when he leaves his power of calculation will be unimpaired by inactivity. Arithmetic is well chosen for this training in logic."

Does the child need this logical training in early life? Does he need to keep this "numerical machine" in use? All indications seem to point in the opposite direction. We are forced to agree with Mr. Emerson White that "the early forcing of abstract ideas and logical processes upon young children has been a wide and serious error in primary instruction, especially in arithmetic. People who were marvels in arithmetic at nine years of age became indifferent if not dull at fourteen."

Imagination and not logic is the child's first supreme right; and so far as number can contribute to the building up of this kingdom, there is little danger. Give a pile of colored splints such as any kindergarten supply house will furnish. Make up a 10-pile using rubber bands. Join ten 10-piles and make a 100-pile. Then a 1000-pile. A fatigue point is soon reached and it ceases to be play. Now suppose there were ten 1000-piles, how big a box would it take? Have ten bundles or boxes made up. How big a box will it take to hold them? This is a 10,000 box. There is no limit to supposing, yet the range of imagination will be limited by the range of mental content. It matters little how wild the guess, a million pile may be as large to the child as a stove or a church, yet every guess checked off by test gives a wider range for the next fancy flight.

But must we repeat these with miscellaneous objects? Within limits, yes. But the adult mind scarcely realizes the range of a child's imagination.[1] It would do us good to watch a child's tea party. Tea is made, bread is cut and buttered, and a complete meal is served with much satisfaction, when the entire equipment comes from the child's rich and exhaustless storehouse, imagination. The more extensive the objective and pictorial world furnished to the child, the richer the mental content, but as you love the child do not weight it down with numerical and exact proportional ideas. If it be so very important that the child learn the number combinations in addition and multiplication before they take on any significance, then why impose that extra bugbear, the number concept? Is seven more easily remembered by adding complexity to its mental content? Apart from what the child can win in this way, and a possible use of number games *with caution,* let methematics be postponed to the prepubescent period at least.

A normal boy or girl beginning the study of arithmetic at the age of ten or twelve can, the writer believes, acquire in two years: 1. all the information and skill essential or useful in non-professional life, 2. a firm foundation on which to lay a business or a technical course, 3. a bird's-eye view of the larger fields and loftier heights of mathematics, where one may aspire to bask in the sunshine of pure science. Beyond all this, one will come to the dividing of the ways with a fresh and vigorous mind, ready to climb heights or walk the soberer paths of business.

An attempt will be made in later pages to indicate what lines such a course would follow. Apart from a few special cases our conviction is based upon a synthesis of many partial cases found in teaching and in special tests. A postponement of some things is worth working for. At one time every mother welcomed measles in early years as a thing to be over with; now hygienists count every year left behind this treacherous disease as a victory. The argument against postponement of mathematics rests largely on the value of early logical training. We do not know of any systematic study of the relative ability of those with early training in arithmetic and those without it. Superficial study does not indicate any marked advantages on either side. This does not mean that there is no distinction to be made. Mathematical prodigies began their career very early, and some few of them were great men, but their meagre history indicates no external influence. It is a racial instinct that nature calls attention to

[1] This agrees with Dr. Hall's position in Educational Problems.

in her "sport." Whatever the strength of Dr. Sidis's (24) position on the education of babyhood, he will need time to establish the priority of mathematics in the educational system. We can argue with Hübsch [1] that "arithmetic is like a whetstone," but wait for the temper to enter the steel.

The writer visited a third grade class room. The teacher put a platoon of digits upon the board and touched in rapid succession two or three digits. The combinations were made orally by the children with a facility that would have made glad the heart of a speed maniac. Our next hour was spent in a seventh grade room, and here the teacher complained because the children came up to his room without being able to add and multiply simple numbers. This paradox was submitted to a teacher in a normal school. Her explanation was that the drill had not been kept up. But does that quite satisfy? Any one that has worked among the negroes is familiar with the theory that negro boys and girls are comparable to their white playmates up to puberty and that then there comes a slump mentally and perhaps morally. With this predisposition, certain manifestations took on special significance. Several negroes who remained illiterate up to the age of eighteen and even twenty, later forged through college with some degree of credit. The number of cases, while considerable, are not sufficient to base final conclusions upon, but they do suggest an analogy with the white child. As a primitive people do they need to let the virgin soil lie fallow a little longer? But is the Caucasian child immune against premature fatigue? Prof. Patrick (20) boldly preaches the postponement of reading, writing, and arithmetic until the age of ten. All that we plead for is that, apart from number used in the employ of fancy and, possibly, numerical games which if once learned are played entirely spontaneously, we postpone all discipline of the mathematical faculties until that plastic period is past, and with it the danger of "Imperative number concepts" and fatigue.

What Fusion Means

Assuming then an optimum age for the beginning, what are the essentials and what is the order of approach? Even a casual review of textbooks shows a revolutionary process and it is impossible to predict safely, but there is a probability that the pendulum will swing too far towards simplification. A sturdy mind wants resistance, but titles of new books such as "Mathematics made easy," seem decidedly on the increase.

[1] Arithmetica Portensis, 1748.

Boundary lines are disappearing; algebra is creeping down the grades; geometry seems to have reached the bottom. Higher mathematics no longer assumes a vocabulary with the exclusiveness once in vogue. Occasionally the textbooks open with an alphabetical list of technical terms.

Often a brief history of the subject is given. The modern thought seems to be that, if there be no royal road to learning, the path need not be made a hurdle race. Even the arithmetics are slowly purging themselves of superfluous and technical matter. So far as these simplifications go there are few objections, but the tendencies toward a fusion of subjects is looked upon frowningly. D. E. Smith (26) speaking of synchronous teaching of algebra and geometry says, "Would not the same argument lead us to teach Latin and Greek together or Latin and French?" It is a fact that the Greek and Latin fusion is a fair analogy. There are reasons for it, but there are many more against it. It is also a fact that algebra and geometry are fully as distinct as physics and chemistry or chemistry and biology."

Suzzallo (28) says, "When the influence of the movement (introducing algebra and geometry) penetrated the lower grades, the algebra and geometry were so restricted and simplified that they became part and parcel of the subject of arithmetic, rather than of the elementary phases of the two more advanced subjects." Here we touch the crux of the whole matter. Suzzallo and Smith are right in keeping the treatment of courses separate for the better economy of learning, and at certain stages of the work, the fusing of algebra and geometry may parallel the fusing of chemistry and biology; but that algebra becomes "part and parcel of arithmetic" is the one ideal condition. Mathematics is a unity and must be studied as such in its earliest inception, and however the subject matter may be subdivided for economy, the unity should never be lost sight of. Counting fuses into addition and subtraction, these in turn fuse into multiplication and division. Decimal fractions are another expression for unity. Percentage, interest, profit and loss, commission and brokerage, insurance and taxes, are decimals in harness, and are readily grasped when these subjects enter the child life. The drudgery part of mathematics comes in committing to memory the number combinations. This task is less irksome when it has a motive, and the numerical games already suggested may be encouraged and multiplied. It is significant that, of the 440 games listed by Johnson,[1] but seven are characteristically numerical. This list might be increased and more

[1] *Ped. Sem.*, Vol. 3, pp. 97-133.

devised. Dominoes are seldom played except when using multiples of five; why not of three, four, and six? Why not make them with figures, as they will most often be used in life? Number games with cards serve the purpose if they interest in the same degree; but this is doubtful. Rivalry tends to keep down error, but it is not entirely safe in early years. A mistake made is a loss, a mistake retained for hours is serious. It is better to take a few combinations in addition and force them down into the reflexes. When a mistake is found, storm that center. Appeal to the visual, auditory, voco-motor and even the tactual imagery, if necessary. If the number concept will help, use it. Philips (21) and Döring (4) practically agree on the most difficult portions of the multiplication table, using test and questionnaire methods.

The tables 1, 2, and 3, are rated easy.

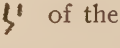
The tables 3, 5, and 4, are rated medium.

The tables 6, 9, 8, and 7, are rated hard.

The combinations 9·7; 8·7; 9·8; 7·6; 9·6, are found most difficult. (Döring's returns have been followed when slight variations have occurred.)

It is significant that many tests for promotion or tests for statistical purposes have been based largely on speed: indeed a German is responsible for the equation, "Efficiency is equal to accuracy divided by time" (22). This equation may be true in the commercial world, but it is fatal pedagogy and has little value for the layman. But the test for accuracy cannot be too severe, and if the espionage against first error is incessant, accuracy will not be a matter of watchful care but an automatic process which means economy and possible speed. The process of learning after this manner will be insufferably tedious, but it does not need to come in the first year or before the end of the second year.

In the finding of this great truth, that mathematics is a unit, simple and oft repeated digits can be used. Child interest is always keen for all that is human. The development of the Roman numerals and the probable development of the Arabic numerals seldom if ever fail to interest.

The Roman X is a natural mile-stone in a tally series and V (the upper half of X) is a half way station; [the old Roman C (centum) checks off the X series and L, the half of [is mid way. Even the doubtful  of the Arabic development can be used to profit. There is a right time to introduce the short-cuts. The aliquot parts are given in most of the textbooks but never as dessert after a meal. The simplest and most appetizing short-cut is for squaring num-

bers ending in five. Then products of numbers ending in five. Next the products of numbers between 90-100. Many collections are to be had, but the choicest list is found in "Quick Figuring" (8). The next step is the use of the table of logarithms; it is easily operated and easily explained, but the explanation can be postponed. In any case refer only to the ten-base.

Now we have wings for large flights. The imagination is peculiarly the possession of early life, although it never goes out of service.

Two problems were tested carefully at different ages. First: "What is the interest on one dollar at 3% simple interest from the year 1 A. D. to the present time? (29). This was easily found and usually occasioned some surprise. Now find the interest compounded annually at the same rate for the same time. This is an Herculean task, but Hercules stands ready, *i. e.,* logarithms. The results of this example are: 1. There is a healthy intellectual shock. 2. Fancy takes leaps and bounds (were the entire earth pure gold it would scarcely furnish the coin). 3. One learns to follow rules regardless of where they lead. (In this case the characteristic of the logarithm is twenty-five.) This third point is important. The writer visited a high school class in algebra and the binomial theorem was being discussed, it was proposed to use the exponent ½ and soon confusion reigned. It did not come out as it should. The class were in the position of the old hunter who owned a pocket compass for the first time, but found it of no use because it "would point South-east." 4. There is an economic value in the advantage and disadvantage of compound interest.

The second example consisted in first guessing and then estimating the height of a pile made up of one million one-dollar bills pressed hard together. Except for a few adults the guess was immediately forthcoming.

The following experiment might be tried. Make a wooden trough with flat bottom; and, if in the country, set it in a brook with sufficient fall; if in a town or city, feed it with a hose. Make the slant sufficient barely to move a pebble, then tip the trough until the speed is doubled and find a similarly shaped cobble stone that the stream will barely move, and then weigh the two stones and find why the second stone is so many times larger. Geo. Iles (12) uses a bottle of glycerine and shows how the large bubbles of air rise faster than the small ones. This is applied to large boats and small boats moving through water and thus is illustrated the economy in

area with the increase of volume. This experiment the writer has not tried, but the practical applications are legion.

These concrete examples can be made extremely interesting, but it is most important that this work wait on appetite. There is danger of mathematical dyspepsia, what T. H. Eddy characterizes as "That hatred of mathematics so universal among undergraduates." But the sauce that makes rigorously exact work in addition and subtraction and multiplication and division palatable, has of itself food value.

It is understood that the pure memory work of tables may be spread out through the entire two-year course, and we can now consider the development of our mathematical unit. The regular work will first center around percentage or applied decimals. (The decimals are elementary, and with notation struck out are no more involved than integral numbers). But these must be understood independent of common fractions. Now a 100-b(unch) is the unit, then a 10-b is 1. When the ten bunch is lacking a "o" fills the gap. We need to find "r" (algebra); when the "b" is 800 and the "p" is 16 or "b" = 8(00) and "p" = .16. Use the splints or their equivalent. If taken at an early stage it makes an interesting game with all combinations of p & b & r & s or (b + p) & d or (b — p). In applying percentage to interest, toy money can be used but has doubtful value. Common fractions come later and involve another set of groupings but are no less units. Pestalozzi's arrangement of dividing large parallelograms into smaller ones with different colored boundary lines for halves and quarters and eighths, is well if the unit idea is uppermost.

At a certain age it is profitable to show that our decimal system is accidental. If we had been limited to eight fingers we should perhaps have had an "octoimal" system and 247 would mean $2 \times 8 \times 8 + 4 \times 8 + 7 = 167$ in our present system. It might be a wise thing to let the children see at an impressionable age the absurdity of our system of common fractions. Had this been done we might have been spared the humiliation of having our lawless system defended from the "high places" in the year 1912. Teach the children of this generation that they are being imposed on by our "common fractions" and confused system of weights and measures. When they are committing to memory senseless tables they will feel the absurdity as at no other period in life. If we could break free from the English monetary system, why can we not go the next step? Who knows but that in 1916 the metric system will be the political issue? If we are dealing with abstract number then our splints will be of service.

The "Grube Method" can teach us something here if we do not carry it too far. Take the unit "twelve." Then a 12-p is the unit and two splints are fractions. Could we have the 12-p steadily, we could write .2 for the two splints, but we use the clumsy way, 2/12, the '2' is a pair of units just the same.

An hour is a unit, and a 12-h or day is a unit, an inch or a 12-inch or foot, a month or a year, an ounce or a pound (Troy). The duodecimal and sexigesimal systems can be used for illustration. It would be the ideal to get back to our decimal system and this can easily be done by putting together five 2-p. We can get rid of our bungling '½' and enjoy our '.1' again; put together two '5-p' and find our way home that way. But we have '¼'; can we put piles together now? Two 4-p's are not enough, three 4-p's are too many. The children must do the trick if it takes weeks and some hints. There is a business way of going at it; take a 10-p for the unit and divide it into four parts, but that does not work well; then take a 100-p and see if it comes out any better. The paper-and-pencil way is to add a cipher and make a 10-p and keep trying larger piles until we get satisfied. The units of measure so carefully laid away in Washington are worth talking about. They must be kept from the air and moisture, the temperature must be just right when they are used, and every detail must be just right. The wonderful delicacy of the instruments, and the correlation of the different units of measure, have a human interest. Measures of weight depend upon measures of space, which in turn depend upon measures of time, until we get back to the stars, and a limitless field opens up before us.

There need be no backward classes to discourage; but application of arithmetic comes early, and special classes take the place of backward ones. This may not be a pedagogical fiction but an approximation to the truth. If a boy takes to examples of a commercial or mechanical nature, then take the hint; if the fact that the stars help us to make scales for weighing take their fancy, then let the teacher take the hint. This illustration of the constant interrelation of the sciences pays if well-timed and proportioned. But it may be overdone. An otherwise splendid teacher in High School mathematics kept his class in constant bewilderment by lightning-like transitions from psychology to physics and back again to geometry.

If the boy or girl finds an original problem, cherish it as pure gold. Miscellaneous problems are to be viewed sus-

piciously. If ever we needed the child to teach us, it is in the making of problems. What shall we say of the following? An example taken from a recent elementary text-book is something like this; "three times six boys went in swimming. One wanted to go but his mother would not let him. How many boys wanted to go?" Departmental teaching in the grade school has serious objections that we shall consider later; but if ever a man or woman needed a "call", it is to teach mathematics to the children. Smith has only a partial truth when he says: "Perhaps no single subject of elementary instruction has suffered so much from lack of scholarship, on the part of those who teach, as mathematics." The first great lack is not scholarship, important as that is, but sympathy with the individual need of each child. We can use to the full Suzzallo's criticism and fuse algebra into arithmetic and let arithmetic meet algebra by taking algebraic form; *e. g.*, 6.9 = 54: use letters in place of figures, a b = c d: why is c d different from 54, if c = 5 and d = 4? Introduce problems that involve the unknown but easily determined values.[1] Letters are no more symbolic than figures or "+, —, +, ÷, =;" they are shorthand for words. (Let a boy dictate to some one, to be taken down in shorthand; and then read his own words to him pointing to the symbols.) But "+" and "—" have been used only 400 years, "=," and "><" about 350 years, and "×" only about 250 years.

Pupils can manipulate letters interchangeably with figures; but postpone the involved parenthetical use. This is enough algebra until arithmetic is well under way. When the time comes, introduce algebraic formula dogmatically. Take the formula; $(x \pm y)^n = x^n \pm nx^{n-1}y +$, etc. This theorem is not to be learned but made available to the pupil at all times. Now let them substitute small values for "n" and test it by actual multiplication.

This *a posteriori* method of proof is sufficient; the rigorous proof can wait unless curiosity is uncontrollable. With the formula thus given, let the scholar follow it as a boy "follows the leader." Let the children find unique values for "n" plus and "n" minus, for "n" integral and "n" fractional. Once started let it lead them where it will. This is their first glimpse of the richness of mathematics; for if they start right and make no blunders (and they must not), it will lead them safely through tangled mazes. This finds

[1] C. Davis' Elementary Algebra, 1859, has this: John and Charles have the same number of apples, both together have twelve, how many has each?

illustration in that High School, cited above, that knew the binomial theorem for integral and plus values of "n," but floundered over the fractional value.

But where does geometry come in? Equation: $x^2 + y^2 = a^2$, gives algebra, geometry, Conic Sections, history and pragmatism. Give the equation a graphic interpretation and you open up a new world and a new playground. This play would be acceptable at any party of young people. There is enough mystery to give a tinge of excitement if tables are given for finding roots. There must be no tedium, and if millimeter paper is used progress may be rapid.

Very little technical knowledge is needed even if the logarithmic tables are used instead of the tables for roots. Refer it to the right angle triangle and you have the cornerstone for trigonometry. The cultural value made possible by this opening will be considered later. This equation considered historically marks an epoch. Nowhere is the interrelation of geometry and algebra better expressed. How shall we make one square equivalent to two smaller squares? Let x be the side of one and y the side of the other, then $x^2 + y^2 = a^2$. This brings us back to the right angle triangle. Here we have an introduction to differential calculus by finding the slope of the tangent.

This, then, in broad outlines, is a fusion of mathematics. It means: 1. An adequate knowledge of mathematical function used in non-business, non-professional life,—this is where the majority belong. 2. A basis for speed and accuracy in accounting. 3. A technique in symbols that is fundamental but not extensive. 4. An educated imagination. 5. A sharp distinction between approximate results and accuracy. 6. Higher mathematics is no longer an exclusive subject. 7. There is possible a more rational choice of vocation. 8. An uncloyed mathematical appetite. 9. An unfagged brain.

The "spirals" that are so important a factor in another system do not make trouble, for mathematics is not for us a series through which we can pass at each return in ever widening circles, but a unit which unfolds and fits itself to every new environment.

Opposed to this there was issued in 1907 a Course in Algebra of 659 pages, containing 5000 written and 3000 oral examples. Problems are introduced for the first time on the 174th page. Fifty-seven examples are devoted to a drill in algebraic expressions. In 150 examples all results are checked numerically. H.C.F. requires 86 examples, 180 examples are "solved literally." "Commutative laws," "Equivalent laws," etc., are fully explained. With so many excellent traits it is

still little wonder that more scholars do not "elect mathematics."

D. E. Smith (26) believes that W. J. Locke's famous diatribe against elementary mathematics reflects local conditions, but *that locality* could be easily found.

Difficulties in the Way

It is not at all easy to teach the unity of mathematics under a graded school system, least of all with mid-year promotions. The departmental teaching has serious drawbacks for other pedagogical reasons, but it would be ideal as a method of teaching this subject. Special teachers in music, drawing, writing, gymnastics and other departments already weigh heavily upon our schools; more would scarcely be tolerated. Specialized supervision when tried has been of doubtful efficiency.

Our Commissioner of Education suggested that every teacher would do well to specialize in one study for a year, and the next year take another subject, and thus round out his or her intellectual and aesthetic nature. Perhaps he would approve of having each teacher specialize in one selected subject and then have amateur artists in geography, reading, history, mathematics, etc., and thus get bits of sample work that would lead higher. When it is found that mathematics can be dropped out of the first four or five grades, the suggestion of "using spare time" will not be a joke among teachers as it is to-day; and with mathematics confined to two or three upper grades, selection of teachers will be less difficult. The nearest approach to an ideal system is found in the Prussian schools: "Whatever the number of teachers, the entire mathematical education of the boy from the elements of arithmetic to those of analytical geometry, takes place in one institution, under one management, guided by the close supervision of the same directors and under the tuition of men of the same scientific training; who are colleagues working in close contact, with opportunities for intimate exchange of ideas" (31).

Ideals

Whatever the system finally settled upon, the more nearly one teacher can devote his whole time to the subject and the longer the boy or girl can stay under one teacher, the more efficient will be the work. The "unity" will soon be broken up for economy of teaching: some will want to go deeper into the technique of algebra; some will go into plane and solid geometry, and perhaps come back to algebra later with an

intelligent purpose of going deeper into pure mathematics; some will swing off into a business course; some into physics and other applications of mathematics; but it will be done under the guidance of a sympathetic teacher who has been in close touch with the child's career. This teacher will make himself familiar with the pedagogy of his subject and will have time to experiment. While he may not be a mathematician he will have some knowledge of the broader fields, else he cannot wisely counsel; he will be in close touch with the technical schools and business colleges, and all departments which depend upon mathematics. No scholar will go into the preparatory school until it is clear where his strength lies. While we are idealizing we cannot stop with the elementary teacher. The teacher in the preparatory school will keep in touch with the former teacher, and mathematics will not be a required subject; least of all will it be dominated by college requirements. Our ideal teacher will be an enthusiast for pure mathematics; he will familiarize himself with the history of the subject and the biographies of its great men. He will at least have a sympathy, if not the time, for every field of human thought; for mathematics goes where the human mind goes and enriches it. It is here perhaps that we can best consider the idealist's standpoint; for instruction will be of little value if it is not given wisely.

The symbol $\sqrt{-1}$ is a wonderful thing and the closed door to fairy-land. The sum of the interior angles may be equal to two right angles, and in that case we are dealing with a plane triangle; or, the sum of the angles may equal more than two right angles, and then it is easily seen that we are dealing with spherical triangles: but suppose that the sum of the angles is less than two right angles; then we have a triangle on an imaginary sphere which has $\sqrt{-a}$ for a radius. This is an easy introduction to n-dimensional space; and the very fact that mathematicians believe that they solve problems and get results in realms of which we cannot even think, has for some minds a stimulating effect.

When in the construction of a circle from its equation, a boy goes too far on the x axis, then $y = \sqrt{-a}$; if he would go farther on the y axis, then $x = \sqrt{-a}$; but he could go farther and find for every new value of x, a value, $y = \sqrt{-an}$, etc. If he only knew how to draw it what an interesting figure it might be! (The story of "Alice in the Wonderland of Mathematics" is worth noting.) (29).

A son writes this astonishing letter to his father: "As soon as I have put it into order, I intend to write and if

possible to publish a work on parallels. At this moment, it is not yet finished; but the way which I have followed promises me with certainty the attainment of my aim, if it is at all attainable. It is not yet attained, but I have discovered such magnificent things that I am myself astonished at the result. It would forever be a pity if they were lost. When you see them, my father, you yourself will concede it. Now I cannot say more, only so much, that *from nothing I have created another wholly new world.* All that I have hitherto sent you compares to it as a house of cards to a castle" (2).

We may or we may not agree with Keyser (14) in his enthusiasm, but this will not hurt a boy or girl if timely. "Yet I know that one who loves not the grey of a naked woodland has much to learn of the aesthetic resources of our northern clime. A mathematical doctrine taken in its purity is indeed grey. Yet such a doctrine, a world-filling theory woven of grey relationships finer than gossamer but stronger than cables of steel, leaves upon an intersecting plane a tracery surpassing in fineness artistry of frost upon a window pane. Architecture, it has been said, is frozen music; be it so, geometry is frozen architecture."

If the following quotation from Keyser (15) be in advance of many children, it is worth talking over with them. "Regarding the relation of mathematics to the former 'queen of all the sciences,' I have on this occasion but little to say. I do not believe that the declined state of Theology is destined to be permanent. The present is but an interregnum in her reign and her fallen days will have an end. She has been deposed mainly because she has not seen fit to avail herself promptly and fully of the dispensations of advancing knowledge. The aims, however, of the ancient mistress are as high as ever, and when she shall have made good her present lack of modern education and learned to extend a generous and eager hospitality to modern light, she will reascend, and will occupy with dignity as of yore an exalted place in the ascending scale of human interests and the esteem of enlightened men. And mathematics by the character of her inmost being is especially qualified, I believe, to assist in the restoration." And also the following: "Science is destined to appear as the child and parent of freedom blessing the earth without design. Not in the ground of need, not in the bent and painful toil but in the deep centered play-instinct of the world, in the joyous mood of the eternal Being, which is always young, Science has her origin and root; and her spirit which is the spirit of genius in moments of elevation, is but a sub-

limated form of play, the austere and lofty analogue of the kitten playing with the entangled skein or the eaglet sporting with the mountain winds."

Mathematics is the one exact science and is to be trusted before the senses. When a scholar is trained to accuracy so that he seldom makes a mistake, and when he needs can make assurance sure by check methods, there is a new manhood awakened, there is a rock under his feet. He must often assume his premises (and that mathematicians sometimes fail to state), but then he can say imperially, "If thus and so is correct, then I know that this is true." This he cannot say of any physical sense. By optical illusions we see parallel lines diverge, equal lines become unequal, regular curves seem to flatten out; by crossing the fingers single objects seem double to the touch.

So strong is this passion for absolute proof with some mathematicians that they challenge our axioms. Bertram Russell went so far as to say, "Mathematics is the science in which one never knows what one is talking about or whether what one says is true." A little agnosticism of this sort is not a bad tonic. This might be enforced by pointing out some apparent contradictions, as "equals divided by equals, the remainders are equal," is not true when the divisor equals an indeterminate zero. The children have a right to be taught the mathematical meaning of zero and infinity. In the same way we could show that things equal to the same things are not equal to each other when irrationals are involved. While it cannot be too strongly urged that such teaching must be cautious, it is equally true that young minds do need to face scepticism for the first time on safe ground. This kind of teaching may be quite as practical as the making out of an itemized bill for John Doe.

Several schools emphasize the wisdom of looking over a problem carefully before starting a solution. Here is another chance for a boy to add a cubit to his stature; to save work by taking thought is worth more than all quick figuring for the average boy. The writer received a moral bracing in his boyhood by an event in the life of a dear friend who was a carpenter and was building stalls in a large livery. Another carpenter was working independently, and rivalry began. This friend instead of increasing speed reduced speed, but he made every movement count; the hand-saw cut to the last tooth, no measurement was made twice, no tool was mislaid, every nail was hit square and sent home; and while the rival carpenter worked with might and main he could not hold his own. To be beaten when his rival refused to hurry was

intolerable. Examples can be found that would require tedious work if solved in full but which may be done with a few figures if carefully inspected.

Favorable Conditions

There is not at present any one textbook known to the writer that could be used; probably no one is capable of writing such a book, but it might not be a loss if we were driven to teach more as the Germans do until experience has taught us what the work demands.

The time of day when the best work may be done is another problem confronting the teacher. Other subjects may suffer by unfavorable conditions; but in mathematics, where accuracy is so essential and the effect made upon the scholar by favorable or unfavorable conditions goes so far towards shaping his after life, we cannot go too deep into the problem of optimum conditions.

The diurnal course of efficiency is discussed by Marsh (16) on broad lines. The range is from vegetable life up through the animal life to man, and the writer considers vital sensory, motor and mental activities; the individual differences are weighed; and the many contributory causes to this daily change, such as meals, habits, muscular and mental fatigue, are considered.

The discussion is too involved for our paper, but a few results deserve mention. Of 316 students reporting, 44 worked until 9 P. M., 187 until 10, 70 until 11, 9 until 12, 1 until 1 A. M., 2 stopped work at 8 P. M. Forty of those who studied very late into the night testify that the knowledge acquired stayed with them; 58 said that "in the morning it, like the Arab, had folded its tent and silently slipped away."

From biographies of 160 authors it appears that 55 worked from 6 A. M. to 2 P. M., two from 2 to 7 P. M., 17 from 7 to 12 P. M., 9 from 12 to 6 A. M., 27 from 6 A. M. to 7 P. M., 6 worked from 6 A. M. to 2 P. M. and 7 to 12 P. M., 4 from 2 to 12 P. M., 37 from 6 A. M. to 12 P. M.

The results found by Rice (23) are of more direct significance and incidentally suggest other worth-while pedagogical truths. He gave examinations in arithmetic to about 6000 pupils. This test included seven cities, eighteen schools. No children were examined below the fourth year. According to his system of marking, when the principle was wrong the example was thrown out entirely. If 83 out of 100 examples had the right principle and 3 of them contained mechanical errors, the latter would be represented by 3/83 or 3.6%. Thus unfortunately no record was kept of mechanical errors

in the remaining 17 examples. There were 8 examination questions for each grade, and all were in the form of problems. Some were of algebraic nature, *e. g.,* "Frank had $3.08. He spent ½ of it for a cap, 1/7 of it for a ball, and with the remainder bought a book. How much did the book cost?" This example was given the fifth grade.

The tabulated result shows the average grade of each room and of each city. The papers are marked; 1, on their actual merit, and 2, on what would have been the percentage had there been no mechanical errors. The percentage of mechanical errors is also given, also the length of daily recitations in arithmetic for each city and grade, and, finally, the time of the recitation, whether morning or afternoon. This last factor in its relation to the other results is what most concerns us now.

In eight of the schools arithmetic came in the afternoon and the average recitation lasted 47.2′, while the average mark based on merit was 60%; the average recitation in the afternoon lasted 50.4′ and the average mark for these schools was 45.6%. While the time given in the afternoon averaged 3.3′ longer, the mark of these schools averaged 14.4% less. No record is given of the time required for home study, but Rice found that study at night coincided with lower grades in examination. The best average for the schools with A. M. recitations was 80%. The best mark for a P. M. school was 39.0%. The lowest average for a P. M. school was 25.3%. The longest time given in the afternoon was 75′ with a mark of 25.3%; the longest time in the morning, 60′ with a mark of 61.1%. The mechanical errors for the A. M. schools were 4.9%, for the P. M. schools, 11.4%; the greatest number of mechanical errors for the A. M. schools, 11.7%; for the P. M. schools, 19.6%; the least number of mechanical errors for the A. M. schools, 3.7%, for the P. M. schools, 7.1%.

After making allowance for differences due to location and method of teaching the argument is strong for morning work. Similar tests made by Mr. Rice in spelling showed more uniform results. It is well for our peace of mind that we do not know the total number of errors made by students in an *exact science*. We know of no statistics giving mistakes in copying work. Within our observation mistakes of this kind are not large.[1] Not a little difficulty in this study comes from defective eyesight. Improper writing materials are to blame for some poor work.

Our present school system does not admit of expert work

[1] J. V. Collins finds the errors for copying range from 5 to 40 per cent. of the mechanical errors.

in any one department, and the average teacher is already overcrowded with work, much of it clerical. Under this dismal, tread-mill condition what hope for improvement? This: save the teacher and the pupil those first years of premature work in arithmetic, and we shall have fresher teachers for work and fresher pupils to work upon.

General Summary

Some of the problems involved are:

1. The child does not need to have his instinct for number work trained.
2. When prematurely trained, there is danger of imperative number concepts and other mental habits that interfere with successful work.
3. The time given to this early discipline in arithmetic is needed by teacher and pupil for other work.
4. Number concepts of a general sort may be safely used in cultivating imagination very early in life.
5. Instruction should start with the concrete units; these units may combine decimally again and again as long as imagination works vigorously.
6. This sense of group unity should run up the scale towards infinity, and down the scale towards the infinitesimal by a decimal order.
7. No concrete object should be used if imagination will supply it.
8. Notation is superfluous and wasteful.
9. When the time comes for the study of arithmetic, decimals come first as a form of unit.
10. Percentage in its several forms grows out of decimals as life interests give them meaning.
11. Addition and multiplication, subtraction and division, can be taught slowly and exactly; arithmetic can be taught extensively with small and oft recurring number combinations.
12. Common fractions and the tables of weights and measures come as a new unit grouping.
13. This relation to the decimal system should be discovered by the scholar.

Suggestions for Teaching

14. Fuse literary symbols with numerical symbols from the first; let numbers and letters be manipulated interchangeably.

15. Refer to the origin of number symbols both Roman and Arabic together with operation signs.
16. Use short cut methods as fast as appreciated.
17. Use logarithms early and refer only to the base 10.
18. Keep up a drill in number combinations for accuracy, not speed. If error occurs conquer it promptly and finally.
19. Let there be a sharp distinction between exact results and approximate results.
20. Introduce algebraic formulae before giving them rigorous proof.
21. Let the parenthetical use of letters come slowly as needed.
22. Let the equation: $x^2 + y^2 = a^2$ be the introduction to broader fields.
23. Omit no apt historical setting.
24. Let the pupil find his own concrete examples; that is, find in real life the problems of life.
25. Give the pupil a taste of metageometry and glimpses of the speculative fields.
26. Put him in touch with mathematical enthusiasts.
27. Introduce him to applied mathematics.
28. Never let him suspect that he is "poor" in mathematics (perhaps it is the teacher who is "poor"). A pupil must not under any condition seem to fall behind. Give him work that admits of no comparison or else let him drop the subject. Schools should not be closed against any pupil because he is defective in one subject.
29. Give the pupil optimum conditions for work.
30. When he has found his niche in life, keep track of him; watch the "misfits" and find the cause. Keep track of those who use mathematics for recreation; find the strength and weakness of those in after life who did not like mathematics in school.
31. If mathematics be studied at all, let the work be a Gibraltar, impregnable, within the limits to which it is carried.

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THE LEARNING PROCESS IN THE ACQUISITION OF SKILL

By R. F. Richardson

In general there are three types of learning. According to Swift: 1, "the acquisition of skill or the learning to do; 2, the formation of associations or the acquisition of information; 3, the getting control or the formation of inhibitions" (29). Of course there can be no fast line between these types, one involves the other to a greater or less extent. This paper is concerned for the most part with the first. Experiments with the last two types will be cited only in so far as they illuminate the learning process in skillful acquisitions.

Favorable Conditions for Learning

Bodily. To keep in good bodily as well as mental condition is recognized as important by all experimenters in the learning process. This is illustrated by the effort of the experimenter to keep the bodily conditions as nearly uniform as possible. Book (3), in his study of the acquisition of skill in learning the use of the typewriter, finds that bodily condition plays an important rôle in affecting the progress of the learner. The irregular fluctuations of attention and effort which affect the results of the practice are largely influenced by bodily condition. "The number, length and succession of these irregular fluctuations would seem to depend as much upon the hygienic condition of the nervous system and of the body in general at the time of the test as on the difficulty of the work." He says further: "It is not what the learner would like to do which determines the rate of progress but what his mental and physical condition will let him do. Learning typewriting is something like mowing a field. The farmer takes out his machine to cut the grass. All he can do is to keep his machine in perfect working condition and properly and vigorously applied to the work. . . . The organism will do the rest." The same author finally concludes: "The present study has forced upon the writer the conviction that no practice or study is entirely economic unless the learner is in perfect mental and physical condition. Work or study while the learner is fatigued is not only worthless so far as progress in learning goes but is apt to be a positive hindrance."

W. S. Johnson (16) in experiments on motor education notes that those who developed most rapidly in voluntary control took more or less physical exercise. He thought that the phlegmatic subject was helped most by exercise. However, he had too few subjects to draw anything but merely tentative conclusions. W. B. Davis[1] in an experiment on cross education used tapping tests. In such muscular reactions he had one subject who was a well trained athlete and consequently accustomed to the outgo of energy to the larger muscles. This fact the author thinks made him less successful in feats with the small muscles. He was fatigued easily. His previous habits were unfavorable to learning which involved so fine adjustments of the smaller muscles. The same author had his subjects tapping with the great toe. He says that the physical condition of the member exercised, independent of the remainder of the body showed in the curve. "On one cold morning the foot got cold in the laboratory and this reduced the record in all the subjects." In Swift's (29) study of the acquisition of skill in ball-tossing, one subject's progress was seriously affected because of loss of sleep. Another subject had his progress retarded because he practiced immediately after attending a lecture, and consequently had to have the practice time changed. It is pretty well noted that poor bodily conditions retard and that good bodily conditions favor the learning process. The bad conditions as a result of loss of sleep, fatigue or what not may be unnoticed by the learner, except as they show up in the result of the day's practice.

Mental Conditions for Learning

The favorable mental approach for the most efficient results in the learning process has been brought out by many experiments. Efficiency as Book puts it is directly dependent on the success in getting the most appropriate methods of technique.

Feelings. It is a matter of every day experience that pleasurable feelings are correlated with the most successful effort and unpleasurable with the opposite. Book (3) finds that while pleasurable feelings are to some extent correlated with the most successful learning, the causal relation for this fact is not quite clear. "Whether feelings and the mental attitude of the learner give rise to the fluctuation of attention and effort and the consequent failure or success in writing, or whether the fluctuation in attention and effort cause the

[1] Researches in Cross Education, *Yale Psych. Lab. Studies,* 1900, Vol. 6, pp. 6-50.

change in feelings, or whether both are joint effects of a still more fundamental cause, is a matter with regard to which it is impossible to make any general statement. In many cases the feelings and failure of attention were clearly joint effects of certain health conditions. A good physiological tone not only gave rise to, or increased the pleasant feelings but made possible the proper use of attention and effort. In other instances a change in feeling clearly followed the variation in attention and effort and the resultant failure or success in the work" (3). Pleasure in learning had a reactive effect. Success brought pleasure, and pleasure an attitude for still further efficient learning. Unpleasant feelings had a retarding and depressive effect and were a source of distraction to the attentive processes. In rare cases where the unpleasant feelings were severe they seemed to serve as an incentive to greater effort, which overcame the usual bad success which accompanies such feelings and consequently allowed material progress to be made. Unpleasant feelings, Book concludes, may not only retard present progress but may result in unfavorable habit formation which has a future retarding effect, consequently "the most economic learning would seem to demand that the learner work only when he can enjoy it and succeed, and wait until he can" (3). Swift (27) found, on the other hand, in his study of skill in typewriting, as did Book, that a good feeling tone was not always coincident with the rise in the learning curve. The subjects on certain days report that they expect to do well and throughout the practice think they have done as well or better than usual, but on the final count find there has been a drop in the curve. On the other hand the period of enjoyment of the work is correlated with the first rapid rise in the curve; and ennui, Swift notes, is an important factor in the making of plateaus, that is, those places where the learner is apparently merely marking time. Thus feelings may be unreliable as a test in the progress of skill. At times the slump in enthusiasm and monotony seems to overcome the learner. After the subject has been on the plateau, and automatization has taken place, then enthusiasm to advance results in the rise of the curve.

This much seems to be clear in learning typewriting from both Book's and Swift's experiments, that a rise in the curve is always accompanied by a pleasurable feeling, but a pleasurable feeling is not always accompanied by a rise in the curve. It may be inferred that pleasurable feelings in themselves are a valuable asset in the learning of typewriting; but at times in other conditions, such as the lack of habit organization sufficient to leave the attentive processes free for new

habit formations, that is, where automatization is too far from being complete, pleasant feeling tones are not accompanied by a rise in the curve.

W. W. Davis[1] in researches in cross education also found that the states of feeling had little to do with the rapidity of tapping. "Often the subject would remark that he did not feel like making a good record, and when the record was taken the result was found to be excellent." Also the reverse was true; one subject remarked beforehand that he felt extra well and expected to do extra well, but that day his record was worse. Davis's tapping tests were simpler than learning typewriting and required less attention. Further his subjects reported only on the feeling attitude previous to the experiment. Swift (29) found in his experiments with ball-tossing that a "growing feeling of confidence usually preceded a permanent rise. The subjects felt that they were going to do it." Warming up would at times free his subjects from the lack of confidence which they had before beginning, and thus a good result would follow. Anderson,[2] in his studies on the effect of physical training, found that every man failed to equal in strength his best record when tested apart from the others. Meumann found similar results in tests in arithmetic and Triplett in competition in turning a reel. Swift says with ball-tossing: "The lack of energy due to waning interest probably has more to do with the delaying of the learner's progress than anything else." He further says, "Confidence that follows a successful series of throws proved of considerable value, unless it led to the carelessness of over-confidence." Faith in one's ability to get out of a desperate situation somehow leaves attention unperturbed. Swift (29) found in his experiment with short-hand that in complex and abstract learning of this nature the emotional ennui plays a greater rôle, consequently there is less efficiency and more plateaus. In this connection Bryan and Harter (8) in their experiment with the learning of the telegraphic language noted that there were no plateaus in the sending curve. Progress was one continuous rise. The sending is a relatively simple process and the learner always enjoyed it. The value of the feeling which accompanies the knowledge of the progress being made is illustrated by Judd's (18) experiment on Practice without Knowledge of Results. The subject was required to practice hitting a mark behind a screen in such a way that he had no knowledge of the results of his practice. Under such condi-

[1] Ct. ob.

[2] W. G. Anderson, Study in the Effects of Physical Training, *Am. Phys. Educ. Rev.*, 1899, Vol. 4, pp. 256-278.

tions occurred what might be expected, the demand for improvement was entirely suppressed. In Swift's (28) experiments with learning a language, periods of monotony and depression apparently did not cause the plateaus; but it is likely, he thinks, that they prolonged them. Returning confidence and pleasure at times foretold a new advance. The subject had a feeling when on a dead level that the score would soon jump up. This author found in learning a language the same situation as he found in learning the typewriter. At times the subject felt that he was making unusual progress, but when the count was made he found that he had fallen far below. In acquiring a language "monotony is a factor in learning. It expresses the inability of the mind to keep interested. The mental attitude affects the plateau, and the plateau in turn affects the monotony" (28).

Ruger (24) in his experiment with the solution of puzzles found that the feeling of confidence played an important rôle in efficiency. Those who worked with the feeling of confidence in the thing to be done had the best results. What he calls the "problem attitude," which consists of undivided attention to the puzzle to be solved with a feeling of confidence that the answer could be found, was the most efficient approach. Fracker[1] in experiments on the transference of training in memory, thought it probable that the feeling of improvement or the lack of it which a subject so frequently experiences in the learning process is more or less connected with the familiarity or lack of familiarity with the imagery in the mental process at the time. Cleveland (11) found in his experiment with the learning of chess, a game in which an important part of the learning process consists in the elimination of the unimportant details, that the emotional factor aids in this process very much and exercises a marked influence on the ability to win. Bryan and Harter, in their studies of the learning of a telegraphic language, say "The young operators use all their energy for the work. With the expert an emotion of fear, anger, or the like, only accelerates the work, but with the beginner it upsets him" (8).

Attention

The favorable attentive processes to gain the most efficient results in learning has been noted by several experimenters. In Ruger's (24) study of the solution of puzzles he observed

[1] Geo. C. Fracker, On the Transference of Training in Memory, *Univ. of Iowa Studies in Psy.*, June, 1908, Vol. 5, pp. 56-102.

that certain subjects in the presence of the experimenter, who knew the answer to the puzzle, had a characteristic attitude. They tended to watch the experimenter as if looking for a cue, instead of giving full attention to the problem to be solved. Ruger calls this approach to the task the "suggestible or suggestive attitude." This attitude was more marked in novel situations distinctly social in type. It was so marked in two subjects that it was necessary for the experimenter to screen himself. A second attitude is what he calls the "self-attentive attitude." This type of observer feels that he is on trial in the experiment. He asks himself, "what kind of showing will I make in this experiment?" Anxiety as to how they will get along as compared with others is prominent with subjects of this type. One sedate superintendent of schools, who was acting as a subject, suddenly broke out with "You must just tell me how I am getting along as compared with the others." The learning attitude of certain observers was at times improved by the statement that they were getting along as well as the others. These two attitudes are closely related. They both show a lack of confidence in self for the situation at hand. They both act as a distraction of attention from the problem. The author says that novel situations are likely to involve one or the other of these attitudes.

A third approach is what Ruger calls the "problem attitude." This was characterized by an active self-confidence and attention to the task to be done irrespective of either the experimenter or themselves. There was a freedom, a confidence that the mechanism would furnish the answer somehow, a flexible holding of assumptions and a careful testing of them. "The various factors entering into this attitude, self-confidence, high-level of attention to the thing to be done, openness toward novel lines of attack, and a critical evaluation from whatever source, were noted with the puzzle series to be connected with efficient forms of response." Ruger thinks there was evidence of indirect control of attention by certain ideals of what the learner considered as an efficient state of attention in the learning process. At times a first success would bring about a complete reversal of attitude which allowed a more efficient approach to other problems when there were few elements in common. The author believes that the problem consciousness is of wide application in transfer. "In other words the problem attitude proves to be an efficient condition and may be transferred to other fields irrespective of the degree of relatedness of the material concerned."

Coover and Angell[1] in their experiment with practice discrimination of sound and brightness stimuli thought that the more economic adaptation of attention is the important factor in transfer. In W. G. Smith's[2] experiment on the relation of memory to attention, in which letters of the alphabet were presented to the reagent to memorize, during which there was introduced a distraction by the repetition of certain numbers aloud in accord with the beat of the metronome, and also tapping tests were used, he found what one would expect, that as the movements became more automatic there was less distraction of attention. No abiding impression was left by an experience unless the association occurred with at least a moderate speed and a fair degree of attention. "Mere simultaneity is of little avail, the associative processes require attention. Repetition and exercise mean little for memory without attention." This principle is well illustrated in every-day experience by the songs one hears all his life but cannot repeat from memory because he has not given any marked attention to the words as spontaneous attention is for the most part busy with the music. Dr. Theodate Smith[3] practiced thrusting a metal point into a hole. She took twenty trials with the left hand, then after ten days' practice with the right hand the left hand was tested again. During the time a gain of twenty-six per cent. was found in the left hand without practice. She attributes this gain in cross education, not to the training of the muscles of the unused hand, but for the most part to the training of attention for that particular reaction.

Dr. Smith found in this experiment that the fixation of attention on the muscular movement to be performed was unfavorable. Fixation of attention on the objective point to be reached by the needle was productive of the best results. Both Mrs. Ordahl (23) and Swift (29) noted the same fact for ball tossing. Attention to the mechanical side was unfavorable, attention to the target gained the most efficient results. Book (3) noted in learning typewriting that an important factor in learning is the learning to attend, that is, to do away with useless movements and use energy more economically. Efficient learning demands constant attention. At any lapse in attention, writes Book, the older habits are liable to step in and gain control and thus do a real damage to progress. The lapse in attention is associated with more primitive

[1] Coover, J. E. and Angell, F., General Practice Effect of Special Exercises, *Am. Jour. of Psy.*, July, 1907, Vol. 18, pp. 328-340.

[2] On the Relation of Attention to Memory, *Mind*, N. S., 1895, Vol. 4, pp. 47-73.

[3] On Muscular Memory, *Am. Jour. of Psy.*, 1896, Vol. 7, pp. 453-491.

methods of work and fewer adaptations, and many of these lapses are beyond the learners control. "Putting and keeping attention on the work is a little like going to sleep, when you try you can't. You must fall into it spontaneously." J. H. Bair (1) in experiments to get control of unused ear muscles found that to gain control over a new muscle it must be associated with the movement of some muscle already in use. The next step is the breaking up of this association. He emphasizes that at this stage, that is, that of the dissociation, the associated muscles are gradually relaxed and the rapidity of accomplishing this is entirely proportional to the attention. "The attention to one activity tends to inhibit the activity of the muscles whose movements are already known."

Effort in the Learning Process

The part that effort plays in learning has come out in various experiments. Bryan and Harter (8) noted in the practice of receiving telegraphic messages at the ordinary rate that a man would never be brought up to the level of real skill. Men, however, whose receiving ability had been on a level for years frequently rose to a far higher rate when forced to do so to win a better position, and thus came forward in a short time into the ranks of the skillful. With the learner of a telegraphic language, it is almost the universal rule that the receiving curve stays at a lower rate than the sending; and this is true for the majority of operators the authors point out. But with those who attain the ranks of the skillful the reverse is true, they receive at a faster rate than they send. Each new advance costs as much or more effort than the previous advance. As a rule most operators will not make the painful effort necessary to become experts. In schools of telegraphy most students drop out on the first plateau. The authors conclude that in learning the telegraphic language it is intense effort that educates. Book (3) says in learning typewriting the plateau signifies less effort put into the work. "It was clearly demonstrated that the learner must work with a do-or-die attitude to make new adaptations and to take a forward step in the learning. . . . To prevent arrest attention must be kept focused sharply on the details of the work and continuously pushed out on the frontier where new adaptations can be laid hold of. . . . The eternal problem in learning is to know how fast to go. Great effort wrongly and carelessly applied causes a breakdown, too little effort lets you slip into an easier and more primitive way of writing. In either case improvement stops.

You either practice in error or you settle down to a low plane of writing quite satisfied with yourself when you should be pushing into a higher plane." One of Book's observers states "only in extreme effort am I able to make innovations or lay hold of higher and better ways of doing work. Then I suddenly catch myself doing the writing in a more economical way. The short circuiting takes place only when I am pushing myself very hard." Book's study shows also that there are times when pushing ahead with a do-or-die attitude hinders. The learner did best by going slower at first and refreshing the associations and then working with a do-or-die attitude. "Make haste slowly is valuable for learning, then sprint." It is a good deal like running a foot race.

Book, in opposition to Swift (31) and Bryan (9), attributes the plateaus largely to the wrong application of attention and effort. He considers that the plateaus are unnecessary in the learning process of typewriting, as some of his subjects did overcome them to some extent by a more economic expenditure of energy. Swift (28) found in learning a language that effort to spurt does not always bring the desired results. Swift and Schuyler (32) note in learning typewriting that the spurt may be helpful if not too severe at the wrong time; but maximum effort is not always within the range of voluntary control. Johnson (16) from the basis of his tapping tests holds a view like Book's that if the subject could be induced to sustain the same effort day by day there would be no plateaus in the habit curve. Bryan and Harter (8) found that there was relatively no plateau in the sending curve in learning a telegraphic language as compared with the receiving curve, due in part to the less demands of effort in the sending process. A feeling of satisfaction that one's goal is reached cools effort and is consequently unfavorable to learning.

Johnson (16) finds that too strong effort at times defeats its aim in tapping tests. The thing to do seems to be the letting loose of effort within the range of its adequate coördination. By such means the learner gets on a higher level. The letting loose of too much at first seems to be a disadvantage. Cleveland (11) found in the learning process of chess that the learner reaches a stage when he knows a great deal more than he can execute. At this stage the more he tries the more mistakes he makes. "His difficulties are not due to the lack of attention but to the inability to attend to one thing to the exclusion of the others. . . . There is something in the purely intellectual life corresponding to motor automatization, which is shown in the ability to think symbolically or

abstractly and thus to handle large masses of detail with the minimum of effort."

Swift (27) finds for typewriting that the effort to spurt is helpful if not too severe but overstrain exhausts the learner and hinders the progress by bringing into the focus of consciousness processes that serve best when in the back ground. The same author notes in learning shorthand that effort may defeat its own end. J. H. Bair's (1) experiment in getting control of unused ear muscles shows that the voluntary attempt to relax the muscle merely tightens the tension. The learner had to get at the result indirectly by inervating an adjacent muscle already under control. By this act he allowed the other muscle to relax. Johnson (16) from his tapping tests suggested that the expenditure of severe effort in the exercise was an aid to persons of phlegmatic temperament and a disadvantage to persons of more nervous temperament.

Conscious and Unconscious Processes in Learning

An important part of the learning process seems to take place of which the learner has no present awareness. Swift (27) says with reference to typewriting, "The process is subconscious. The learner suddenly finds himself doing something that he has not before been aware of. The new acquisition is well along however before it is discovered." Book (3) notes the same for typewriting. "The adaptations or forward steps were made quite unintentionally so far as the subjects were concerned. They were simply fallen into when the conditions were favorable for making a forward step and were executed marginally for some time before the learners became aware of their presence and the value of their work. When the advantage of the new method had been noticed it was generally therefore made use of purposefully, though even then consciousness seemed to be more a hindrance than a direct help." Again he reports: "All short cuts were fallen into unconsciously quite unintentionally on the good days while practicing under strain." Swift (29) notes for ball-tossing that the method by which the learner improved was hit upon unconsciously. "The learner simply tried to do the thing upon which he was working and in the process he found himself using an improved method and the new acquisition was always well along before it was discovered." The same author learned to handle the punching bag skillfully later with a view to test this same principle. He reports that here it is also quite true that the delicate movements by which the bag is made continuously to rebound with a rapidity

that the eye cannot follow, were happened upon quite unconsciously. Book (3) and Swift (27) both agree that for typewriting there is an unconscious utilization of experience. The variations in methods of learning apparently appear as accidents and these variations build themselves into habits quite without the direction of consciousness.

Ruger (24) in his puzzle experiment found results agreeing with Book and Swift in regard to the unconscious origin of new variations in method, but as to the manner in which these variations are utilized he finds different results. With the puzzle experiments consciousness plays a more important rôle in the utilization of variations which originate unconsciously. This difference is probably due to the fact that the solution of puzzles is more purely a psychical process as compared with the motor acquisitions in learning typewriting. Ruger says: "The value of the variations . . . seemed to have varied rather directly with the precision with which they were analyzed, and the extent with which they were treated as hypotheses to be systematically tested with subsequent adaptations or rejections." In other words the drops in the curves (time being the variable), were coincident with consciously adapted variations rather than with the unconscious ones.

Consciousness of a habit formation may allow the habit to be more flexible. Judd (18) found in his study of habit formation without knowledge of results that habits formed without consciousness of results were more automatic and less easily broken up. Swift (29) found in tapping experiments that the avoiding of errors was mostly an unconscious adaptation, which in some instances could scarcely be noticed. As far as the observer was concerned consciousness had no originating power. Consciousness seemed to be concerned with the selection after the new method had cropped out. Ruger's (24) puzzle experiment strongly suggests that in the learning process of the more purely mental type, such as the solution of puzzles, where novel situations are present, consciousness plays an important rôle. He found that the logical planning out of modes of attack was an efficient approach to the problem if the logical assumption was held in mind hypothetically. Mrs. Ordahl's (23) experiment shows in the intellectual task of squaring a three-place number every detailed step in advance was the result of conscious change. On the other hand she found in ball-tossing, skill seems to develop without the consciousness of details. Consciousness she found had but little function as a guide to a better method of work except in the gross features of learning. Attentive consciousness,

however, to the end to be attained in the experiment was a necessary factor to allow adjustments to take place in the periphery of consciousness. Consciousness seems to be a corrective and makes permanent any favorable variations which may occur. Improvement goes on by a process of discovery and elimination of errors and by adapting new methods suggested by some habits fallen into or some idea to better possibilities. "The more purely muscular the process is, the less conscious the learner is of it." Mrs. Ordahl (23) says the rôle of consciousness is similar to that of a teacher who can do little in the way of teaching feats of muscular skill save give a few instructions leaving the rest to the pupil to get by hit-and-miss practice; but in more complex activities he can act as a pattern, giving methods and pointing out deviations from them.

Mrs. Ordahl makes a little different distinction from Book and Swift in regard to learning and consciousness. A large part of what they say takes place in the subconscious, she considers as occurring in consciousness of a less degree. Mrs. Ordahl's study of the relation of consciousness to the learning process may be summed up as follows: In the learning process both conscious and unconscious factors exist. Unconscious factors are those involved in the fixing of associations by practice and the cropping out of modifications of behavior subsequently utilized by consciousness. In complex processes the activity as a whole is conscious for each advance, but details once mastered drop out of consciousness leaving attention free to attack new problems. "Consciousness is a corrective agent eliminating errors, improving on elements unconsciously developed and organizing the whole process."

Wrong Associations and Learning

Learning consists not only in the formation of new associations, but dissociation is equally important. Indeed the dissociation seems to be more important if by more important is meant processes more especially correlated with higher mental activities. Where useless associations or habits persist and cannot be broken up, there is no progress. The work is at a standstill. Mental plasticity, which consists in a certain readiness for discharging worthless associations and habits, according to Swift (29) is correlated with intelligence. The pedagogical value of having attained skill in some one line consists in the attainment in some degree of a habit of mental flexibility for the specific activity which may be transferred to other activities. It is the inability or lack of proper

incentive to break up old associations and thus prepare the way for a higher level of activity that keeps the learner on the plateau. In the acquisition of skill, habits are formed only to be broken up. In fact their most important function seems to be in allowing themselves to be broken up. They are the raw material for the next level of habit formation, and habits of this higher level the raw material for the next, and so on throughout the hierarchy of habit formation. As Bryan and Harter (8) pointed out for the telegraphic business, most operators continue to use the raw material of what would make for skill if their old habits could be dissociated and reassociated into more efficient work. The same might be said for learning in any other field. The situation is a little like the savage who suffers from the cold in the midst of raw material, which if utilized would make him warm, but the old inefficient habits of keeping warm are in the way of the formation of new customs. Book (3) found for typewriting that elaborate and circuitous methods of writing were constantly being simplified if there was progress. There went on at the same time the elimination of old habits and the recombination into new ones. Some of the earlier habit stages seem to have existed only to be eliminated, but most of them, as well as many of the seemingly useless mental strivings and acts, played an important rôle in the development of the higher order of habits. "They constitute the raw material from which the more direct and economic habits are formed and are necessarily a precondition for their attainment. Those not used must be discarded regularly, discarded as fast as outgrown to keep the learner's progress from being arrested on a lower level of attainment than he is capable of." Book's study well shows that the elimination of useless habits is necessary to the formation of new and more efficient habits of work.

The impediment of old habits in the formation of new habits is illustrated by an experiment of Bergström's (2). He found in sorting a pack of eighty cards in one order an average time of sixty-five seconds was required; but, in changing to another order after the associations had been formed for one order, it required an average of eighty-five seconds and numerous false moves.

A condition of plasticity and variability is accompanied by fewer interfering habits for any reaction; as for example, in the young and unlearned. Also each higher level in the learning process shows a less variability and a greater interference of the present habits and associations in the attain-

ment of the next higher level. Woodworth[1] in experiments on the accuracy of voluntary control found that the rapid decrease of variability of movement in gaining control was one mark of lack of practice, also a slow variability was a sign that the effects of practice had already been attained and consequently not much further progress was to be expected. "A low variability means that the improvement will be very slight unless one can get out of the rut by some means, that is, invent a new way." As the learner approaches his maximum of speed and accuracy his individual trials agree more and more closely. However the person with the greater variability and interfering associations may not learn faster, Woodworth points out; for he may not try so hard or may be affected by other conditions.

In the more purely intellectual process of learning, as shown in Ruger's (24) puzzle experiment, too rigid assumptions on the part of the learner seriously retarded progress. Assumptions were helpful if held hypothetically; otherwise they had an effect analogous to interfering habits in the more purely motor field of learning. Assumptions as to the best method of approach to the solution of the problem were frequently made by accident and were thoroughly entertained by the subject without being subject to criticism. Ruger (24) says: "These assumptions in some cases limited the movement made to certain portions of the puzzle and in some instances rendered the solution impossible. The subject was made sensitive to variations not in line with his assumption. It seemed as if these assumptions were almost blinding in some instances." The readiness with which such assumptions were broken up when properly tested was correlated with the most efficient results. An assumption as to the way the puzzle should be solved was more rigid and harder to get rid of with some persons than with others. One subject accidentally made the assumption that the star and concrete puzzle was to be solved by taking off the interlocked star. He worked ten hours without questioning this assumption. Wrong assumptions in intellectual learning are not unlike useless and interfering habits in learning of more purely motor character.

These assumptions on the part of the learner were broken up in various ways. Sometimes they would disappear in the interval to the next practice, simply dropping out. A number of cases occurred where the answer popped into mind on waking, the first thing in the morning. Ruger does not attrib-

[1] R. S. Woodworth, The Accuracy of a Voluntary Movement, *Psy. Rev. Mon. Supp.*, Vol. 3, No. 2, pp. 1-114.

ute this altogether to freshness but to a shifting of value leading to a new attack. A second method resorted to was random manipulation in the hope that something would turn up. A third method of getting rid of wrong assumptions was the most efficient. It consisted in the sophical attempt at logical analysis of the situation. The method was not efficient for all subjects at all times. "It was limited in effectiveness by difference in variability native to the individual or due to age, physical conditions, recent experiences, and many other facts." In Ruger's experiment assumptions whether voluntary or accidentally fallen into were helpful if they were broken up as soon as they were a hinderance to further progress. The worth of an assumption on the mental side is comparable to muscular habits of lower order in muscular learning, their greatest value consisting in their being broken up. The absence of an assumption in learning probably results in a slower but evener curve. Swift (29) had one subject in his tapping tests who consciously avoided throughout the experiment the adoption of any method of procedure. He purposely tried to allow everything to take its natural course without any assumption as to ways of work. His learning curve showed a slow but steady progress. Swift attributed the character of this subject's progress to an assumptionless method of approach to the task.

Plateaus and Their Nature

Plateaus are places in the learning curve where the learner seems to be marking time or makes a real drop. As to what takes place at this time and its cause, there is a wide disagreement. Bryan and Harter (8) early maintained that the plateaus are a necessary part of the learning process, that during the plateau a valuable part of the learning is going on, even if the results are not visible. Their statement is as follows: "A plateau in the curve means that the lower-order habits are approaching their maximum development, but are not sufficiently automatic to leave attention free to attack the higher habits. The length of the difficulty is the measure of the difficulty of making the lower order habits sufficiently automatic." They found, as noted above, no plateau in the sending curve or in the passage from the learning of the combination of letters to that of words. But in the passage from the word habit there was more difficulty, consequently a serious plateau was occasioned, which lasted for some time. Bryan and Harter thought that in learning the telegraphic language there was a passage from lower order habits to

higher order habits. They found only one and two plateaus in the learning curve for their subjects.

Swift and Schuyler (32) thought there were at least two causes for the plateaus in learning typewriting. They agree with Bryan and Harter that they are apparent resting places allowing automatization to take place; but they thought a slump in enthusiasm the cause. It might well be a question whether the slump in enthusiasm is a cause or an effect. Swift also agrees with Bryan and Harter that an important part of learning takes place when the learner seems to be marking time on the plateau. He disagrees with them in that he finds a greater number of plateaus; and he makes a different interpretation of what occurs in the progress of the learning curve. Instead of there being a passage from lower order to higher order habits, as Bryan and Harter thought, he found both order of habits present from the beginning and both present throughout the length of the curve. The difference was one of degree and not of entire elimination of the lower habits. The lower order habits were always present, the associations were only made more quickly, so that they were less easily noticed. "The learner," he says, "gradually passes from a period when the lower order predominates to a period of predominating higher order habits. The latter are a part of the process from the beginning." Swift found the same causes and conditions in the formation of the plateaus in different kinds of learning, typewriting, ball tossing, tapping tests, learning a language, telegraphing and short hand. For these various kinds of learning he would place as the primary cause of the plateau the lack of sufficient automatization.

Book in his experiment in learning typewriting and Leuba (20) in a study of the acquisition of a language agree with Swift's interpretation that there is no separation between higher and lower order habits. Book's theory of the plateau does not agree with that of previous investigators. He attributes the plateau to the lapse of attention, the so-called "lapse in attention theory." He claims that no real progress is being made at the plateau, but important changes for future practice are taking place during a part of the plateau practice. "The time is taken up with the overcoming of special difficulties which stop the development of all order of habits in progress of formation at the time, getting rid of evil effects of mistakes which the final perfection of the special associations naturally brings. When these are overcome the attention is again properly applied." Book denies that the plateau is necessary to the next step in learning. "The learner is

simply caught in the law of habit and can't get away until spontaneous attention gets in its work." He holds that plateaus should not occur at all in simple learning and in more complex learning they may be avoided. Some of his subjects, he reports, did overcome them. The smaller plateaus he calls resting places. They are merely breakdown stages, he thinks, caused by wrong application of effort and lack of attention. W. S. Johnson (17) also thought in his experiments that if the subject could be induced to maintain the same amount of effort the plateau would not occur in the curve. Ruger (24) agrees with Book's (3) interpretation that plateaus represent periods of stagnation caused by the failure of variations to occur.

Summary

1. Good bodily condition such as health, rest, freshness, and the like, is a valuable aid to the learning process. Poor bodily and mental condition is apparent in the curve, even where the condition is not noticed by the observer.
2. Pleasurable feelings are a valuable aid to the learning process. But pleasurable feelings are no criterion for progress as shown in the curve. Unpleasant feelings are usually accompanied by a lack of progress but not always.
3. A feeling of confidence in regard to the thing to be done is favorable to learning.
4. As to how far feelings are a cause or an effect of efficient learning is not known.
5. Learning is concomitant with attention. Spontaneous attention is most favorable.
6. Progress in skill means an increase in the ability to attend to more things with greater ease. The method of accomplishing this is through association and habit formation, which leaves attention free from unessential details.
7. Attention to the thing to be done, that is, to the end to be attained, is favorable to learning. Attention to the muscular movement to be made or the self-attentive attitude is unfavorable to the most efficient learning.
8. On account of poor bodily and mental conditions, incomplete associations, and habit formations, etc., efficient spontaneous attention to the task to be accomplished cannot always be had.
9. Attention to a wrong habit or assumption is a hinderance to learning.

10. Effort is favorable to learning, but it is controlled effort that counts. To spurt, if the conditions are favorable, educates. Too severe effort at times where conditions are unfavorable may defeat its end; yet on the whole it is effort that counts.
11. Variable elements out of which new habits and associations are formed are developed without the learner's awareness.
12. In the acquisition of muscular skill the formation of habits takes place to some extent without consciousness of them; but in more purely mental operations the learner is more fully aware of all habit formations.
13. In general the function of consciousness in the learning process is a corrective agency, that is, variations and habits acquired unconsciously are selected or eliminated in light of the end to be attained.
14. The dissociation process is as important for learning as association.
15. The value of a habit in the attainment of skill consists in the readiness with which it may be broken up when its purpose is served allowing new habits to form.
16. The value of an assumption in more purely mental operations consists in their tentative character, a readiness to disappear when no longer useful.
17. The learning process is irregular, and the more complex the learning the greater the irregularity.
18. Learning is a process of short circuiting.

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THE PROBLEMS OF CHILD HYGIENE*

By Wm. H. Burnham

I do not know the reason which brought about the change in the name of this department from that of Child Study to Child Hygiene, unless it was that so much of the work in child study and so much of the interest of the workers now center upon problems of child hygiene. I was not present at the San Francisco meeting, and the records are meagre. I am sure, however, that the aim was not to minimize the importance of the scientific study of children. All child study is significant for hygiene; and child hygiene covers an important part of child study.

It is fitting, as I trust you will agree, that there should be formal recognition of child hygiene in the N. E. A. The general and departmental programs this year bear evidence to the interest in the subject. Next year the International Congress of School Hygiene is to meet in this country, holding its sessions in Buffalo in August. The importance of the subject I need not emphasize at length; your interest in it is proved by your presence; but I will beg you to notice a few of the contributions of hygiene to pedagogy and some of the problems that this department may well investigate.

It is customary for the presiding officer of each department of the N. E. A. to give an address. I have chosen for my subject The Problems of Child Hygiene and the Contributions of Hygiene to Education.

The first contribution to which I would call attention is the evidence of the vital relations of hygiene and education. Let me illustrate somewhat in detail some of the wider of these relations and the need of regarding them.

School laws, for example, for the spread and improvement of popular education, although framed with the best intentions in the world, are liable to cause grave harm unless regard is had also to the principles of social hygiene! For illustration, let us consider for a few minutes the experience of England.

As people in England, in the last century, began to feel the

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necessity of popular education and the evils of child labor, certain important legislation occurred. From 1864 to 1867 there were a series of Acts of Parliament applying to the iron, steel, and copper industries, and finally the Workshop Regulation Act of 1867, that forbade the employing of children under 8 years of age and from 8 to 13 except as half timers. In 1870 the Foster Act was passed, which provided for the formation of Board Schools where necessary, and in 1877 the Compulsory Education Act. Again in 1887 the Mines Act was passed, and in 1899 an Education Act which forbade the employment of children under twelve in any way to interfere with attendance at school.

Each of these Acts was passed of course with the best of motives, for the sake of protecting the children and of fostering popular education. What was the result? After each one of them, in the localities especially affected by the factory laws, the birth rate went down. This was true in the mining districts of Cornwall after the Act of 1867; it was true in the factory towns of Bradford, Bolton, and Leeds after the Compulsory Education Act of 1878, and in general throughout the country after the Factory Act of 1891, and I think also after the Education Act in 1899.

Why did these results follow from such apparently excellent laws? The investigations by Karl Pearson and his associates have apparently shown the reason. As a result of such legislation the children could no longer add to the family income. The economic value of the child was destroyed. The father was handicapped as against the childless; the mother was handicapped as against the childless. These studies indicate that whenever legislation takes away the economic value of children to their parents, the supply of children diminishes.

The direct significance of this for hygiene is shown by another fact observed by Karl Pearson. For some reason in England, apparently the first born and second born of a family are of less stable constitution; and the neurotic, the tuberculous, and the insane are more frequent among them. This means that if you decrease the size of families you increase the proportion of the physically and mentally unsound in the community.

At the same time that England thus handicapped the fathers and the mothers of the fit, it took care of the children of the paupers and criminals. Of this Karl Pearson says:

"I do not speak lightly; there is very definite evidence to show that the terrible fall in our birth-rate since 1877 has been a *differential* fall. It is a fall which concerns chiefly the fitter members of all classes. The fitter of all classes,

from the artisan to the executive, have fewer and fewer children, but the unfit maintain their old numbers; nor is the reason hard to seek,—income and wages are no longer proportioned to physical or mental fitness. The man and woman who cannot afford to marry are now taxed for the education, the sanitation, the medical provision, and very often the nutrition of the offspring of those who ought not to marry. The policy of bettering the environment has been carried out regardless of the fact that it has checked the reproduction of the essentially abler and more desirable members of the community. Our ignorance of the relative intensity of nature and nurture, has led us in political and philanthropic action to disregard nature in the belief that improved nurture must involve steady racial progress. If the view I have attempted to put before you be a correct view, then we have spent our energies on grindstone and oilstone, when the first need was good steel." (K. Pearson, Nature and Nurture, pp. 27-28.)

I am well aware that some of you may maintain that the checking of the birthrate is a good thing. Others may exclaim, as I do, against the evils of child labor. Others will perhaps point out that conditions in this country are different. Very good; but all this is aside from my point, which is merely to illustrate how the best meant legislation that ignores hygiene may have quite different results from those intended. The essential facts, to sum them up in few words, are these:

England, by her legislation, took away the economic value of the child without compensation. She thus handicapped the parent as compared with the childless. This decreased the number of children in a family and increased the proportion of the diseased and defective. At the same time, she provided for the children of the pauper and diseased classes, and thus put a premium upon the production of the unfit. I use this merely as an illustration.

The first contribution of hygiene, then, is to show that if we are to have good raw material for the processes of education, we must have regard to the laws of biology and social hygiene, and that even the noblest aims of a pedagogy that ignores hygiene may be dangerous. The first problem is how can we put a premium on the production of healthy children and avoid in all our educational and philanthropic efforts putting a penalty upon the parentage of the fit.

The second contribution is to show the significance to education of the hygiene of infancy. The second problem is how to save the 20 to 30 per cent. of children that die in the early years, and how to avoid tuberculosis, rickets, and

the like, that cause so large a part of the so-called school diseases later.

A very significant example of the relation between school hygiene and child hygiene in the broader sense is furnished by recent studies of rickets and scoliosis. Rickets is a disease that falls usually between perhaps the fifth and twentieth months of infancy. The discussion of this disease is not likely to be included in the books on school hygiene. It is not supposed that teachers are concerned with it; but it is especially significant in its relation to the health of the school child; and scoliosis, which has erroneously been supposed to be especially a school disorder, cannot be understood without knowledge of the facts concerning this disease of infancy.

It is said by many authors of text books on school hygiene that scoliosis is specifically a school disease, but recent studies indicate that, in 50 per cent. of the cases, scoliosis is caused by rickets; in 15 per cent. it is caused by certain innate abnormalities; and that of the remainder—35 per cent.—many cases are due to various causes, so that only a small minority remain which can be due to the conditions of school life; and here apparently it is only the cases of functional total scoliosis that can be traced to the school.

Without the study of the wider subject of child hygiene and such diseases of infancy as rickets, and the like, school hygiene cannot be rightly understood and grave errors are likely to be made. We are devoting much attention to corrective gymnastics; but if we would prevent scoliosis we must go back and provide for the hygiene of infancy.

The third contribution of hygiene is to show that the first aim in the early years of the kindergarten and primary school should be health and normal development, and the emphasis placed upon developing the basal structures and fundamental nerve centers and habits of health that shall be a defense during the later years.

Let us recall certain facts and look them squarely in the face. First of all, there is widespread dissatisfaction with our present school system. Both parents and teachers are very largely dissatisfied. Parents point to the small amount of useful knowledge that pupils bring away from the school, and to the injury to health that frequently occurs, and raise the query whether the reward of this modicum of knowledge is worth the sacrifice that is made. Teachers, on the other hand, especially in the higher grades, complain that children have small desire and little ability for work; that they cannot do anything difficult; and lack stamina

and efficiency. Usually they lay the blame on instruction in preceding grades or on lack of training in the home. With all this we are not directly concerned; but the fact of the widespread dissatisfaction, both among teachers and pupils, cannot be ignored.

Now the causes of all this are a long story which cannot be told here, but one feature of it we are concerned with. It may be put briefly as follows: If children are to do the work that the school requires satisfactorily, they need better health, clearer minds, and more desire to work. Not only is there enormous waste because of the absence from school on account of illness, and in the school on account of bad methods, but a large part of the children are handicapped by disease or physical defects. They need a better foundation of physical health and development. The point to be noted here is that they need this for pedagogical success.

Thus from the point of view of hygiene, the whole aim of education in the early years should be modified and the emphasis placed primarily on health and normal development. Hygiene shows the vital importance of normal development and protection from disease in these early years. Pedagogy, on the other hand, shows how little in the way of formal training is likely to be received, and how wasteful is the process of instruction likely to be in these years, and that the net increment of knowledge is very small.

Fourth, hygiene has shown the tremendous significance of the development at the adolescent years, and the importance of this period for health and education. Here a whole group of problems are presented—problems in regard to the emotional life and sex hygiene as well as problems of general, somatic, and mental health. It would be the gravest mistake to suppose that these questions are already settled. Here many more investigations are needed, and only in a general way does hygiene now point out the pathway of normal education. This general contribution is to emphasize the need of training as compared with mere instruction, training in healthful interests of manifold character and in habits of health both physical and mental.

Fifth, studies of modern hygiene have shown that the most efficient school work must have regard for the optimum conditions of brain activity, that education must be adapted to the stages of physiological and psychological development, that regard must be had for the fundamental psychological laws of learning and retention and the proper alternation of periods of work and rest, and that haste and premature and unrelated development not only are liable to do great injury to the

health but to defeat the very ends of education. Here again a whole group of problems in regard to the best periods of study and the best conditions for brain work and the like, are presented.

Strangely enough, the opinion seems to prevail in some quarters that in some way hygiene is in conflict with pedagogy. Many years ago in Germany, when Kraepelin uttered his oft-quoted words to the effect that the inattention of children is their salvation and uninteresting teachers an hygienic necessity, forthwith there was a hue and cry from the teachers as if in some way pedagogy had been attacked by hygiene. There is no sort of conflict between the demands of the two sciences, or the two arts if you please. Hygiene, in fact, is an essential condition of efficient pedagogy, and the only way children will be able to meet the growing demands of the modern curriculum effectively, is by regard for the laws of the hygiene of development in general, the hygiene of the nervous system as regards work and rest, and mental hygiene as regards the training in habits of attention and orderly association. We boast of our schools, but many of their graduates have to be re-educated in the sanitarium or the hospital.

Sixth, are all the problems of the child's school environment, including the hygiene of the schoolhouse and the playground,—the problems that our National Bureau of Education has begun to study so auspiciously.

Seventh: One more fundamental problem of a practical nature is presented. Nowhere perhaps more than in hygiene is there such a gulf between our knowledge and our practice, between knowing and doing. Systems of medical inspection that do not inspect, the best systems of ventilation that do not ventilate, adjustable seats that are not adjusted, the best playgrounds that are not used, the best conditions for work and study which are not regarded, are of little value. Hence we have the great practical problem of how to bring about the actual practice of hygiene in the schools.

Probably we must struggle with this practical problem for a long time. We are yet far from settling the many practical questions involved here. Hygiene does, however, emphasize a few general points. First, it is important that teachers should receive adequate instruction and training in modern child hygiene. Second, it is necessary that the emphasis in all our hygienic education should be placed upon training, the actual practice of hygiene rather than upon mere instruction; and as a means of bringing about such training, a special organization, a militia of hygiene if you please, may well be established.

A few weeks ago it was my privilege to witness the parade of the high school cadets in the city of Boston, a parade of two or three thousand school boys. It was an excellent exhibition of the results of careful drill and organization. The cadets did credit to themselves and to their military instructors. But as I observed them as they marched, I noticed how many were sallow in countenance, anaemic, or flat chested, or mouth breathers, or apparently suffering from some physical disorder or defect or bad condition; and how few had the ruddy glow and the general aspect of health that the adolescent should exhibit. The school had not caused disease, but had failed to produce healthful development.

If this is the price that must be paid for education, it is no wonder that parents are dissatisfied and that they ask whether the reward is worth the sacrifice. What man of sense would bargain vigorous health, normal development, and a few motor accomplishments, like those of the Boy Scouts, for a little conventional book knowledge and anaemia and ill health and maldevelopment?

Why should not the health training which is now so large a part of the military training in the regular army be the special feature in the training of high school cadets? Instead of special drill in military tactics, why not let the emphasis be placed on drill in the habits of health, and gradually change the high school cadets from a purely military organization, omitting the formal technique of an organization which in the near future is likely to be little more than a general police force, to a militia of health trained to fight the conditions of disease by the methods of modern science?

Such are some of the larger aspects of school hygiene and such the relation of hygiene to pedagogy. The time is long past when education could ignore hygiene. The time has come when we need a better perspective and a clearer view of the essentials in education. The problems outlined in this general way are, I am convinced, the subjects which this department should carefully investigate. Each one of these great topics includes a score of more concrete problems. In each a large collection of facts and careful study are needed. The general points may be summed up briefly as follows:

1. How in all educational and philanthropic legislation to put a premium upon the production of healthy children.

2. How to protect infancy so that we may save the lives of the healthy children that are born and how to protect them from contagious diseases, rickets, and the like, so that when they come to the period of school life they may not be the inevitable candidates for the so-called school diseases.

3. How in the early years of school life so to place the emphasis upon hygiene that by coöperation with the home normal development may be ensured, the foundation laid for future health, and the children saved from the usual school defects, defective sense organs, decaying teeth, deformed jaws, defective speech organs, adenoids, and the rest.

4. How at the period of adolescence to develop such healthful interests and such habits of healthful activity that the youth may be saved from emotional neuroses, social evils, and the like, and both morals and health be ensured.

5. How in all grades to adapt education to physiological and psychological age and to develop such habits of work and rest, of attention and orderly association, and such normal habits and interests in general, that the graduates of the school may no longer become candidates for the hospital but develop into normal healthy workers.

6. How to provide for all a sanitary schoolhouse and an ample playground.

7. Finally, how to bridge the gap between knowing and doing, so that our hygienic knowledge may be utilized everywhere and every school graduate become a teacher and a soldier in the army of health.

Such are the great problems with which we have to deal. They are fundamental to education. We talk of education for citizenship, education for life, education for efficiency and for character, but if we ignore the laws of biology and of social hygiene, if we penalize the parentage of the fit, with the best possible education the race will degenerate. If we disregard the hygiene of infancy, an enormous percentage of the best children born will die, and a large percentage will survive as candidates for scoliosis, tuberculosis, and imbecility. If hygiene be not emphasized in the early years of the kindergarten and primary grades, then the long list of physical defects, adenoids, decayed teeth, deformed jaws, and the like, will continue. If our youth at adolescence are not morally and hygienically trained, social vice will remain with us. If the conditions of efficient brain activity and the principles of mental hygiene are not regarded throughout the whole system of education, and if positive habits of healthful activity are not formed, public education will remain unsatisfactory, and the product be inefficient, unreliable, and continue to furnish candidates for the sanitarium and hospital for the insane; and, finally, unless we can devise methods of transforming our hygienic knowledge into hygienic doing our science will remain futile.

PRACTICAL ILLUSTRATIONS OF THE LAW OF APPERCEPTION

By Joseph T. Griffin
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A few years ago, no teachers' convention was pedagogically complete unless its program called for lengthy lectures and discussions on this subject. The very simplicity of the law of apperception has apparently prompted educational writers to wrap it in the robes of verbal obscurity. Lange, McMurry, DeGarmo, all have contributed their quota to the process of elucidating the simple, and explaining the obvious.

Teachers have gotten into an attitude of mind where they look upon apperception as a mystic force which can be evoked only by the greatest teaching skill acquired as a result of almost endless reading on the subject. A knowledge of apperception and the ability to apply it properly have been regarded as extremely rare attributes among the teaching body. A story is told of a superintendent who was examining a lower grade primary class. Desiring to test the pupils' knowledge of the phonic method of reading, he placed the word "apperception" on the blackboard and called upon a young child to read it. The little tot got up—and bravely began her analyzing and blending process: "ap-per-cep-tion" murmuring the syllables to herself—and then blurted out "apperception." "Very good," said the superintendent almost startled at this exhibition of reading power, "now, what does it mean?" "I don't know," said the child, humbly. "Oh! that's all right," said the superintendent, encouragingly, "neither does your teacher."

Now I am going to try to make clear that there is nothing wonderful in this much mooted teaching law. Apperception is not some form of mentality evoked during the teaching process, it is part of the common experience of life. It is not a phase of mind, it is mind itself. No mental activity can be carried on without it. Apperception is simply the effort of the normal, interested mind to assimilate new ideas by blending them with those ideas or cognitions which already exist in the mind. It is the effort to build up new concepts from old material. A child in an elementary school was recently asked to define a mountain range. The answer was promptly given: "A mountain range is a large cooking

stove." Now, the psychology of this answer, which appears to be so absurd, illustrates very nicely the operation of the law of apperception. No concept of a mountain range had evidently ever been built up in the mind of the child. Thrown upon his own resources, he was compelled to define a mountain range in the terms of his own previous knowledge. A mountain had associated with it in his mind an idea of bigness. A range, he knew only as a cooking stove. So what could be more natural than to blend these two ideas together to get the new concept of a "mountain range" as a large cooking stove.

On a recent ocean trip, some people seated on the upper deck late one evening were startled to hear a sizzling, crackling sound overhead. Those sounds were at first merely sensations. Every one who heard them was unconsciously moved to a mental effort to account for, or to identify these unusual noises. Into the field of consciousness these new sensations were projected. They challenged the intelligence, and aroused the curiosity of all. All the old memories of similar sounds were revived in consciousness for the purpose of identifying these strange sensory impressions. Upon investigation, it was found that they were produced by the apparatus of the wireless telegraph. These noises, which before were merely sensations of sound, now became "apperceived" as the concomitants of wireless telegraphy. A new concept was thus created, and around it clustered, by the operation of the law of association, all the previous ideas existing in the minds of these people regarding wireless telegraphy. And as the number, variety and richness of these ideas varied with the individual, you can readily understand that the final concept varied. Its scope and amplitude depended upon the amount of information previously existing in the mind of each person. To those who had never heard of wireless telegraphy before, the explanation of these sounds would have been devoid of meaning. Those persons would simply have acquired a name to give to certain sounds; but the name would have been as meaningless as the sounds themselves.

An apperceptive basis is then absolutely necessary to interpret new ideas. Illustrations of this fact may be had abundantly from our daily experience. A business man overhearing two teachers in a street car discussing some of the details of their professional work, the operation of the law of multiple sense appeal, for instance, would very likely not have the slightest idea of what they were talking. On the other hand, these teachers listening to the conversation of two business men discussing the details of their work and using

the vernacular of their trade, would be just as much at sea as to the meaning of their conversation.

Every field of human endeavor has its own particular language, built up of terms that have acquired a rich meaning absolutely incomprehensible to those who lack the familiarity with the multitude of individual ideas which are generalized or epitomized in the given word, phrase, or expression. Such terms as "wiping a joint" used by the plumber; "the selling short" of the broker; "the formal steps" of the teacher; "the making of the dummy" of the printer; "the coming to attention" of the soldier,—all would be meaningless to the ordinary person outside the sphere of those particular special activities. And if an ordinary person were put to the task of explaining the meaning of these expressions, he would interpret each of them in the terms of his previous knowledge obtained from his own experience; and the explanation would, no doubt, be quite as absurd as that of the pupil's definition of a mountain range.

The law of apperception operates not only in the acquisition of new knowledge, but it acts in the appreciation of personalities. Some one has said that it takes a great man to appreciate a great man. This is perhaps true. It means that there must be present in the mind sufficient material to constitute a basis for forming a judgment as to what qualities determine greatness. To one who has never felt the stress and the strain of accomplishment, the success of others is neither understood nor appreciated. Every field of human effort has its conspicuous figures whose superiority is recognized fully only by those within the circle of their own interests. An instance of this necessity for an apperceptive basis as a prerequisite for the recognition of superior ability, was displayed recently when a very well informed lawyer, who was also a member of the legislature and presumed to have a broad outlook on things, happening to notice on my library table the two large volumes of G. Stanley Hall's "Educational Problems"—which, by the way, is a magnificent and monumental contribution to the literature of pedagogy,—remarked to me: "How can a man write such a mass of *stuff* about teaching?" Because of this gentleman's unfamiliarity with the scientific aspect of education, the great services rendered by Hall to the cause of education were absolutely lost to him; and a really great figure in the educational world shrank into the commonplace, simply because in the mind of this lawyer there was no material from which he could form a judgment as to the value of Hall's great work. His point of view was on a par with that of the pugilist, who,

when he read in the large headlines of the daily press, of the death of James Russell Lowell, remarked with a puzzled expression on his face, "Lowell! Lowell, who did he fight?"

The presence of apperceiving material in the mind is necessary also in the purely emotional phase of the mentality. The feeling of sympathy for the bereavement of another is never vital, sincere and heart-gripping, until one has himself gone through a similar sorrow. The great emotions of the human soul portrayed by the orator, the dramatist, the novelist, are fully appreciated only by those who have gone through the deeper experiences of life. The love story, the tale of human tragedy, the portrayal of surging human emotions, become invested with a new and richer meaning when they can be interpreted in terms of old, familiar feelings. The word that appears as an empty sound to some, can thrill the heart of others with the exquisite joy or pain of half forgotten memories; and around each printed line, or spoken word, or phrase, come clustering the shadowy figures from the past to drape in the robes of the familiar old, the forms of the unfamiliar new. The school boy, free from trial and trouble, may repeat in his childish treble the glowing words of "Invictus," but what meaning to him have the lines,

> "In the fell clutch of circumstance
> I have not winced or cried aloud."

And what message to him of high hope and courage have the heroic lines,

> "It matters not how straight the gate
> How charged with punishment the scroll
> I am the master of my fate
> I am the captain of my soul."

Literature and art can transmit their wireless only to those minds which are attuned to receive it. That is the reason I sometimes think it is a mistake to have young children read the so-called masterpieces. The seventh year pupil who reads a Shakespearian drama, for instance, has his curiosity as to what Shakespeare has written satisfied before he is able to understand him. And the fact that he has once read a given play, later deters him from reading it again at a period when he will be better able to appreciate it. It is only from a wealth of acquired experiences, from a rich basis of personally felt emotions that we can really comprehend the master plays of Shakespeare. It is the culmination of rich experience, when we rise to the full appreciation of Ingersoll's characterization of the great dramatist as an "intellectual ocean whose waves touched all the shores of human thought."

Apperception enters into every conscious act; if the proper material is there, the mind functions correctly; if the proper material is not there, the mind uses the best it can get, and as a result, functions incorrectly or inadequately. The task for the teacher then, is to see that the proper material is in the minds of the children at the time they are brought into contact with the new material. This is the significance of the law of apperception from the teacher's point of view. And this significance is vital to the success of class room proceedure because this very obvious duty is so frequently neglected. Some one has so very aptly said that "the habit of assuming that children know more than they do is the cancer disease of our schools." It is because our teachers are so prone to assume that the proper material is present in the minds of the children, at the time they are confronted with the new matter, that the result of the blending which mentally takes place between the new and the old, is so discouragingly different from what had been anticipated.

The steps in the process of apperception are as follows:

1. A new idea is presented.
2. The mind immediately works to bring to the surface of consciousness similar ideas to which the new idea can be related or by means of which it can be interpreted.
3. If old, similar and related ideas cannot be found, the mind works to bring up the next nearest related idea.
4. If this cannot be done, the mind rejects the new idea completely. This failure may be the result of
   a. The absence of any related material.
   b. The discontinuance of the effort, which means the cessation of interest and attention.

From this we can see the duty of the teacher consists in:

1. Ascertaining, by means of question and discussion, whether the children have any related material and then determining
   a. Whether it is accurate,
   b. Whether it is complete.
2. She must
   a. Supply the material if it is not there,
   b. Amplify it if it is incomplete,
   c. Correct it if it is inaccurate.
3. She must stimulate the interest of the children so that they will,
   a. Continue their efforts to get together the related material;

b. Hold this old material in the center of consciousness, through the power of attention; and
c. Be eager to get the new material to add to the old (motivation).

The application of the Law of Apperception extends through the teaching process as follows:

A. In the step of PREPARATION, when the teacher is calling up the related old material.
B. In the step of PRESENTATION, when the new material is attached to the old.
C. In the step of COMPARISON and ABSTRACTION, when the new blended ideas are compared for similarities and differences.
D. In the step of GENERALIZATION, when a new concept is formed, which is the result of the complete blending of all the related ideas present in consciousness at that particular time.
E. In the step of APPLICATION, when the completed generalization is used as the APPERCEPTIVE BASIS for interpreting new ideas, either to determine their absolute similarities or to mark their differences and modifications.

To illustrate:

The children have been given a concept of a seaport. In the light of that concept, they consider Chicago and find: a. That Chicago is near a lake but not near the sea. b. That it is at the mouth of a river. c. That it has a steamship terminal. d. That it is a railroad terminal. Because of this difference, Chicago does not completely fit the concept of a seaport, but as it possesses all the other requirements, it is apperceived as a lakeport. In this case, the old concept "seaport" has been used as the apperceiving basis for the new concept—lakeport.

Apperception then is not confined, as some authors have stated, to the step of Preparation and Presentation, but runs through the entire teaching process. In the entire step of preparation, however, apperception is the result of the teacher's direct and conscious effort. In the other steps it is the indirect result of her teaching ability, her control of her class, her power to arouse and hold the attention of her pupils, and above all, of her power to make the children feel the vital need of the new material.

Apperceptive Basis

An apperceptive basis is really a storehouse of ideas which may be used in the acquisition of new knowledge. The process of apperception may be likened somewhat to a chemical action. If you take a glass of water and drop in it a little red ink, the result will be a mixture which will possess neither the deep red of the ink nor the colorlessness of the water. When a new idea is projected against a background which already exists in our minds, it blends with it, giving something to, and taking something from, that background. In other words, the acquisition of knowledge is not only an amplifying process, it is a modifying process.

One of the great sources of discouragement to the teacher lies in the fact that when she presents a new topic to the children, and then proceeds to question them in order to have them reproduce for her the new ideas they have just received, they give her back something which is so different from what she anticipated. It is simply because the ideas previously existing in the minds of these children, have, in the unconscious blending process of apperception, colored or modified the new ideas presented by the teacher. Occasionally it happens that she gets no response at all. It may ease the hurt to the professional pride of the teacher to know that the failure to produce an impression upon the minds of certain children, may not be any reflection upon her teaching skill. The presence in the mentality of the child of some dominating emotion may entirely inhibit the apperceptive function. The child who comes to school ragged, hungry, with the lingering, benumbing pain of an uneasy night obsessing all his faculties, is in no mood to grapple with the abstraction of mathematics, or follow with interest and intelligence the operations of grammatical analysis.

Apperception in Ethical Training

Dramatization possesses its value for giving life, vitality, concreteness to the work in ethics because it makes children live through certain emotions; and when they have once lived through these emotions, they then possess an apperceptive basis for comprehending any later written or verbal reference to them.

I had the pleasure recently of seeing a dramatization of Hale's "A Man Without a Country." The reason for the international appreciation of this work as a literary masterpiece was never before so vividly impressed upon me. It really apotheosizes patriotism. The children who watched

this performance were thrilled. When Nolan asks the lady from his native state if she had heard any news from home, and she turned to him and said, "Home! I thought you were the man who never wanted to hear of home again," the overwhelming sense of Nolan's isolation was pathetically apparent to even the youngest child. They were made to apperceive the abstract term "Patriotism" in terms of human feelings for home and loved ones. In their history work later, they are better able to understand the moving power of patriotism—of a love of country so deep that no human sacrifice becomes too great. They are able to "feel" the emotion of a Sergeant Jasper or a Molly Pitcher and of the other countless heroes of history who, in the name of patriotism, have given up their lives upon some red and tangled field of human strife!

The virtue of contentment is built up apperceptively by the dramatization of the little fable of the pine tree that longed for the leaves of the maple. A good fairy granted the wish. The goats in the night ate the large leaves. The tree then longed for leaves of glass. This wish was granted. The wind came and shattered them. It wished for leaves of gold. Again the good fairy granted the wish. The robbers stole the golden leaves. Forlorn, stripped of all adornment, the tree begged the fairy to give it back its homely but useful pine needles, and promised thereafter to be contented with the verdure Nature gave it.

I need not continue the illustrations. The employment of dramatization is a most effective means of giving an apperceptive basis for the subject matter of ethical trainnig.

Apperception in History Teaching

There are three distinct stages of history teaching.

1st, The Sense Stage, in which we seek to fill the mind of the child with definite and concrete images. This result may be accomplished by:

(a) Anecdote, (b) Story, (c) Biography, (d) Pictures, (e) Excursions, (f) Social Experience, (g) Visits to Museums, (h) Dramatization.

As a result of this first cycle of historical training, the pupil should possess a great number of historical images. These, he may use in the second or Representative Stage of History teaching, to build up the comprehensive imagery required by his historical reading. Just as the child may rearrange a set

of blocks to get a variety of pictures, so the definite images which the child obtains during the sense period of training may be rearranged, combined, expanded, embellished, amplified and elaborated to meet the requirements of the historical descriptions presented to him in the representative period of history teaching. To be more specific: a child who has seen a reproduction of a log cabin, or made one himself; who has seen pictures of the Pilgrims in their various activities; who has seen, and perhaps handled, one of their old muskets, or spinning wheels, or other household relics,—is more likely to appreciate and understand the description of the settlement of Massachusetts, than one who has not received these previous sense impressions. He has, in other words, a better apperceptive basis.

In the third period, or Causal Relation Stage of history teaching, the inferences that one arrives at are likely to be more vivid and lasting if they are the result of the comparison of concepts built upon a vital and interesting apperceptive basis. The purely intellectual inference that the common council type of government in New England was largely the result of the physical conditions under which the earlier settlers lived, will possess vitality and certainty in proportion to the vividness and definiteness of the pupils' mental pictures of the mode of life of those settlers.

Apperception in Geography

All that has been said in reference to the necessity of strong early sense impressions in teaching history, applies with equal force in teaching Geography. Before a text is placed in the hands of children, definite concepts of land and water forms and minor physiographic features should be built up in the minds of the children. A concept of a river may be built up using the running stream as the starting point. A WATER-SHED or a DIVIDE may be explained to the children in terms of the gable roof with its drainage gutter on either side. A crumpled newspaper, partially opened out, placed upon the floor and water sprinkled upon it, may be used to give the children the embryonic concepts of highland and lowland, mountain range and river system, lakes and bays.

The New York Course of Study in the Syllabus for Geography enumerates a great many aids in building up geographical sense impressions or apperceptive bases for later geographical study. Among the aids mentioned are: Globes, Maps, Charts, Pictures, Railroad and Steamship Time Tables, Excursions, clay modelling, study of type-forms, etc.

Apperception in Nature Study

1. For the purpose of making the subject vital and interesting, objective illustration must be used constantly. Pictures may be used when the objects themselves cannot be obtained. A diagram may be used to illustrate a detail of growth in plant or animal life which cannot easily be described. The purpose of Nature Study in the elementary school must necessarily be to fill the mind with sense images which are definite, rich in detail and vital, so that they may be used as the apperceptive basis for a wider and more extensive knowledge of nature work later.

The child who has planted a single bean, and has seen it spring into life, germinate and reach the maturity of its growth, has a definite apperceptive basis for comprehending the great phenomena of plant life in all its myriad phases. It is true that the single plant placed upon the class room window-sill may look silly and puerile to the casual, uncomprehending observer, but to him who knows, to him who has an apperceptive basis, this single forlorn looking plant is but the concrete symbol of Nature's great creative force. It is the child's point of contact with the great world of growing things. It is but the nucleus of an idea which increasing knowledge, experience and training will expand into a full, rich, reverent and sympathetic appreciation of Nature.

2. A knowledge of Nature Study is necessary as an apperceptive basis for the understanding of literature.

Take the following selection from a fifth year reading book:

> Pansies, lilies, kingcups, daisies,
> Let them live upon their praises;
> Long as there's a sun that sets,
> Primroses will have their glory;
> Long as there are violets
> They will have a place in story:
> There's a flower that shall be mine
> 'Tis the little celandine.

These lines are incomprehensible—are merely words, words, words to the one who has not acquired through Nature Study some definite cognitions or mental pictures of the flowers mentioned in this selection.

No teacher should attempt to have such a reading lesson unless, 1. The children already possess such knowledge, 2, unless the material for giving this knowledge is near at hand.

Apperception in Reading

No child should be permitted to read a selection unless the teacher is reasonably sure of the following:

1. That the child will be able to get some content out of the selection. This means that the child must be sufficiently familiar with the mechanics of reading so that the mental activity will not be confined to the recognition and pronunciation of words.

2. That the ideas that the child gets out of the selection are those that the author intended. This means that the child must have an alert and correct apperceptive basis for the reception of the ideas contained in the selection.

In the following selection, for instance, which is taken from a fifth year reader, if the children think that "Jill-o'er-the-ground" is a boy or an animal running, their reading will not be very successful:

Jill-o'er-the-ground is purple blue,
  Blue is the quaker-maid,
The wild geranium holds its dew
  Long in the bowlder's shade.
Wax-red hangs the cup
  From the huckleberry boughs
And barberry bells the gray moths sup
Or where the chokecherry lifts high up
  Sweet balls for their carouse.

Or if they think, which is very likely, that a "quaker-maid" is a girl, or that "barberry bells" make a noise like brass, or that the "chokecherry" is a dangerous thing to swallow—the ideas which they are getting are certainly not those that the author meant to convey.

In order to read this selection intelligently, the teacher must first ascertain, by means of questions and discussion, how much the children know of the subject-matter in each line. She must: a. Supply it if it is lacking. b. Correct it if it is inaccurate. c. Amplify it if it is incomplete. This she does during the period of PREPARATION. Now, read this selection aloud or have some one read it to you. Then be honest with yourself and see how much of it *you,* yourself, comprehend. Then reflect upon the cruelty of expecting fifth year children in a city school to read this selection understandingly. This excerpt only indicates the absurdity of many of the poetical selections which are foisted upon us in our reading books.

Ask yourself how much of your reading time it would take to explain all these references and give the children a correct apperceptive basis, and when you determine that the time spent in preparation would be out of all proportion to the time actually to be spent in reading, then you can unhesitatingly declare such a selection to be unfit for your class and pass it over for something more within the range of your

pupils' apperceptive reach. This is a good criterion for you to follow in all reading exercises.

Some Scientific Views of Apperception

The views of a few representative philosophers may be summarized as follows:

Leibnitz: By apperception we understand distinct, conscious conception coupled with remembrance, as well as thinking, reflexive comprehension of the contents of our own mental states, in fact, inner perception, or self-observation. It exerts itself as spontaneous activity, dependent, however, upon the determining influence of the existing contents of the soul.

Kant: Spontaneous activity, then, which combines in self-consciousness the various impressions and ideas offered through the senses, is called "APPERCEPTION."

Herbart: Every simple or complete perception (or sensation) which enters consciousness through the gates of the senses, acts upon the ideas present as a stimulus. It repels everything contrary to it that may be present in consciousness, and recalls all similar things, which now rise with all their connections. This complex perception (or sensation) invades several older groups or series simultaneously, and this induces new conditions of fusion arrest. The new percept must be met by a sufficient number of apperceiving ideas, that is, such as offer enough points of contact with the new, and are sufficiently strong, and cross the threshold of consciousness at the proper time. It is taken for a fact, that our outer and inner perceptions, without exception, take place with the assistance of older related ideas, the contents of which are determinative for the new perception.

Lazarus: More clearly than in the creation of this so-called outer form of language is noticeable the activity of the acquired contents of the soul in another kind of language formation. When, for instance, the Greeks and Romans designated the ox "bos," they evidently meant to say "the boo-making" animal; that is, they saw the whole animal in this single quality, in the tone of its voice. Among all the different kinds of sense-perception which combined create the idea of that animal, this one is most prominent; its name, therefore, was transferred to the entire concept. Thus it came about that a word designates the whole thing, whose name in reality expresses only one quality. Whenever the concept ox was connected with that word, apperception of a new sensation through an older, linguistically fixed one, took place.

STEINTHAL: Every perception is a process performed between two physical factors or elements. That which is first given is the primary stimulation of the mind, a weak, imperfect product, caused by sense-action. A second more important element is combined with it, namely, a memory-image of the same, or a similar object of observation. This aids in interpreting and understanding the primary action of the soul, by being fused with it. An idea, or a group of ideas already in possession of the mind, apperceives the new impression. From the combination of both arises a product of cognition, perception.

BOOK NOTES

The Normal Child and Primary Education, by Arnold L. and Beatrice C. Gesell. Ginn and Co., 1912. pp. 340.

Have two poets written a book on primary methods? Is it possible we shall sometime have humorists in the schoolroom? Think of discovering a chapter on humor in a pedagogical treatise, and of emerging from the somewhat unwilling venture into it with joy, reverence and wonder quickened anew! Imagine a school man (and woman) worshipping a vision of beauty, and with the fitting and flexible language to convey it to others! Or rather, do not think or imagine such difficult things, but read this little book and experience for yourselves these new and rare delights.

Using the authors' terms as far as possible, we summarize: Our standards of normal childhood are sadly slipshod and the sciences of education give more types of subnormality than of normality, whereas by keeping the normal close to the ideal type we shall tap many untouched reservoirs of childish interest and activity. The best measure of the civilization of any people is the degree of thoughtful reverence paid to the child—the last serf of civilization. While to-day there is relatively little deliberate and brutal cruelty, perhaps there has never been so much of the cruelty of indifference and ignorance which science alone can dispel. The development of physiology and medicine and especially the increase in our knowledge of the nervous system, are of the utmost importance in our treatment of children, but of still more importance is the theory of evolution both in biology and psychology, represented in these two fields by Darwin and Hall. When the history of science is seriously recorded these two names will be linked together. Both are large-visioned interpreters of nature, combining scientific methods with a philosophic temper; both have gleaned the fields of paleontology, anthropology, geology, botany and zoölogy to set forth illuminating interpretations of life. Hall is the greatest modern student of the child, and the foremost leader of genetic psychology and the child-study movement. Child study in this country began with Hall's census of the content of children's minds on entering school, and took on organized shape at the Columbian Exposition with the founding of a national society for the study of children, the British association being founded the same year. Among the important developments since have been the National Playground Association, Meumann's and Lay's work, Goddard's investigations, Parker's and Dewey's work in Chicago, Thorndike's, Witmer's and Whipple's studies, the development of school hygiene, and other almost equally important phases.

Part II gives us the genetic background of the child, first on the biological side, which is summed up thus: "Thus all the vital and enduring interests and experience of ancestors, of primitive man and his prehuman progenitors, tend to survive in the behavior of descendants, and the spirit of the past flickers up again in the unfoldment of every individual nervous system." Next is traced the primitive ancestry of the child,—"It surely is interesting to contemplate that the forebears of that boy in the front seat only two thousand years ago

were lounging and hunting in the woodlands of Germany—superstitious, loyal, brave, brutal and highminded forest children, clad in the skin of beasts." Dewey, Dopp and Rice of Chicago University have shown in various ways how the natural bond between primitive man and the child can be utilized. How far back we trace this pedigree is merely a matter of taste, but when we study instincts we range up and down the whole scale of life. These are roughly classified into: 1. Self preservative, including food quest, proprietary instinct, hoarding and collecting, locomotion, right-handedness, fear and fight; 2. Mating and parental; 3. Social—gregarious, rivalry, deception, showing off, jealousy, sympathy and coöperation, language, docility; 4, Play instincts, imitation, workmanship; 5. Relaxation, reflexes, sleep, giggling, crying, obstinacy, etc; 6. Work, perseverance. These represent the deepest requirements and tendencies of the race, are geologic in their venerability, and all happiness and health depend upon their adequate expression.

Two very interesting chapters are those on the hand and touch. In the first is traced the development of the hand in man and the parallel development of use of it in the growth of the individual child, with the pedagogical implications. The motility of the hand joined with its intrinsic sensitiveness, makes it the supreme organ of perception. Teachers should become more conscious of the hands of their pupils—and dirtiness is not their most vital characteristic. The Scriptures have touched the hands with idealism—we must have both a pure heart and clean hands. Then comes an apotheosis of the sense of touch. No other sense has such a wide domain, or lies at once so all-pervadingly close to our personality and to our realization of the objective world. Tactility is the very essence of reality. The contact experiences resulting from manipulation constitute the very core of thinghood. With the possible exception of hunger, touch is the most ancient of all experiences. Through no other avenue does the child to-day get such a wealth of artistic enjoyment, both with small objects and the elemental contacts with Nature. Briefer descriptions of the other senses follow, with a final criticism of the school for using words instead of things, confusing education with verbal instruction and word drill, when wordless contact with things is the deepest educative experience, and the most moral; for by some half mystical process the qualities of things, great and small, visual and auditory, but especially tactual, sink through the thin layer of the intellect into the deeper strata of the heart of the child.

Part III is concerned with the pedagogy of the primary school and discusses school subjects and program in the same illuminating way, as modes of expression. Drawing should follow the child's own development and preserve his delight and daring. Dramatic expression brings to the emotional life what travel and study do to the intellectual, and brings character into consciousness. Our neglect of the speaking voice is one of our greatest educational sins, hence phonics, speech and language for communication. Hand work, handwriting, nature study, literature and reading are also considered, and the much abused busy-work is viewed as the great agency for teaching a child to work independently, honestly, and vigorously. Morning exercises give the set to the child for the day, or allow the teacher to change some unfortunate set acquired before reaching school. Discipline is only careful individual training in good habit forming, and must begin with the child where he is, leading him sympathetically and carefully from one success to the next.

Under the conservation of child life are included chapters on Pesta-

lozzi and home education, bodily hygiene, the saving sense of humor, which is considered the great agency for preserving mental flexibility and individuality, formalism and child personality, and the significance of childhood as the foundation of youth. "Childhood is the gateway to a larger experience and the path over which the child is led broadens into the great highway over which the youth must walk alone. . . . If the beauty of life and its freshness have been preserved to him, he will carry the blossoms of imagination and the fragrance of happy hours to guide the ardent feet of youth into cool, clean places." AMY E. TANNER.

Die Kinderpsychologischen Bestrebungen, von LUDWIG STRÜMPELLS. Dargestellt von Rudolf Unger. Strassburg, Friedrich Bull, 1912. 200 p. (Aus Schule und Leben. 11. Reihe, Nummer 6.)

It was very well to have a birds eye view of the rather varied pedagogic activity of this veteran in philosophy and pedagogy who died in 1899. He was a contemporary of Dörpfeld, Waitz, Stoy, Rein, and Ziller, and was one of the most influential pupils of Herbart. The work here is divided into:—First a general part which treats of the cosmological ideas, objectivity, mechanical and intellectual views of things, the soul and its causalities, etc. Then comes a special part devoted to the psycho-genesis of the child under the captions empiricism, art, speculation, religion and morality, theoretic function of thought and its practical expression in deeds and words. Then the individuality of the child, and finally, pedagogical abnormalities are treated. We do not observe in the book any indication that the author is acquainted with any English work in this field, nor indeed has he followed child study even in his own land. His first interest perhaps is in Strümpell's idea of causality, which is about the same as that which has been lately set forth in Yerkes' psychological text-book.

Pageants and pageantry, by ESTHER WILLARD BATES. With an introduction by William Orr. Boston, Ginn & Co., 1912. 294 p.

These chapters summarize the experience of some years in producing and writing amateur plays and pageants which have convinced the author that as a means of instruction, of inculcating literary appreciation and producing the historical sense, dramatic work has no equal. Imaginative powers are cultivated and nothing sends the children so eagerly to the library shelves as the desire to know something of the times they are to portray. Acting teaches more than fact, trains more than the voice or the bearing, and besides all its intrinsic value, such work brings *esprit de corps* to the school, where it keeps many an unambitious child in the school when otherwise he would have wandered his discontented way to truancy or the factory. It fosters social instincts, creates harmony between pupil and teacher, advertises the school, and need take no undue proportion of time. After a chapter on the making of a pageant, five are given, viz., a Russian, Mediaeval and a Colonial pageant, the heart of the world and a pageant of letters. The work is illustrated and has a valuable bibliography.

Weaknesses of universities, by ANDREW SLOAN DRAPER. Syracuse, N. Y., C. W. Bardeen, 1912. 55 p.

This work is an attempt to mediate between the claims of universities in this country and the criticisms of R. T. Crane of Chicago. He finds the lust for richness, bigness, social influence and political power

is one of the great weaknesses. The ambition to secure gifts and appropriations to erect sumptuous buildings, in the author's opinion, hardly comports with the permanent democracy of our institutions. It is hard to get rid of bad teachers. Our democratic government affords means for scheming and appealing to flabby sentiments and the wide open optative courses are sending us to an unthinkable situation. Then there is a fondness for irrelevant discussions. Often those most competent to speak are least willing to do so. Work is multiplied unreasonably. There is a tendency both to respond too much to popular demands and on the other hand to be too independent of them. The university is likely to become a little cosmopolitan world by itself. Sometimes teachers exact too much of students, and sometimes students too much of teachers. The universities dominate the private and secondary schools too much. Many of our weaknesses are structural and some functional At the same time they can be compared.

The sexual life of the child, by ALBERT MOLL. Translated from the German by Dr. Eden Paul. New York, The Macmillan Company, 1912. 339 p.

The author of this work is a physician of long experience who has specialized in the topic he here treats. Many works on the subject, as Thorndike says in his introduction, are likely at least in spots to gratify low curiosity, but this book has no such taint. The popular works, on the other hand, often suffer from a harmful tendency to omit the necessary anatomy, physiology and psychology. "Dr. Moll honors his readers by a frankness which may seem brutal to some of them. It is necessary." The scope of the book may perhaps best be illustrated by the following chapter heads: reproductive organs and sexual impulse, sexual differentiation in childhood, symptomatology, pathology, etiology and diagnosis, importance of the sexual life of the child, the child as an object of sexual practices, sexual education.

The teaching of geometry, by DAVID EUGENE SMITH. Boston, Ginn & Co., 1911. 339 p.

The author considers why geometry is studied, gives a brief history of the science and of its teaching from Euclid, an account of textbooks, its relations to algebra, introduction, conduct of a class, axioms and postulates, definitions, how to attack the exercises. Then follows an account of how to teach the first eight books.

The American secondary school and some of its problems, by JULIUS SACHS. New York, The Macmillan Company, 1912. 295 p.

The writer discusses the present status of the public high school, private secondary school, its educational policy, the continuation school, the function of the educational expert, and adds an appendix of outlines for the teacher of certain subject groups in a certain secondary school course. The author was for some time head of a private school in New York and has here summed up in a very useful way his own experience and the content of his teaching.

William Shaen, edited by his daughter M. J. SHAEN. New York, Longmans, Green & Co., 1912. 93 p.

This is an interesting and valuable life of a very successful and prudent purity worker, who died some twenty-five years since. Most of his fellow workers too have passed away. The available material

has been very carefully gathered here by his daughters and others. The work is very plain spoken and deals with the social evil—as indeed it had to—with considerable frankness.

Education in Scotland, by W. J. Gibson. New York, Longmans, Green & Co., 1912. 151 p.

This sketch begins with the Celtic monks and comes down to the Middle Ages, the Seventeenth Century, and in the Nineteenth traces independently the Sunday school, primary schools, Act of 1872 and its results, secondary and technical education, the training of teachers, university, with a final account of recent movements and current questions.

The culture of religion, by Emil Carl Wilm. Boston, The Pilgrim Press, 1912. 204 p.

The author treats of the aims of education and the place of religious education as a whole, its relations to the home, public schools, Sunday school, religious influence of colleges and universities.

Principles and methods of teaching reading, by Joseph S. Taylor. New York, The Macmillan Company, 1912. 238 p.

The chapters are the psychology of reading, its physiology, principles deduced, ends, methods, a quantitative study, a reading test, hygiene of reading, and the author appends a good bibliography.

Festivals and plays in schools and elsewhere, by Percival Chubb and his Associates. New York, Harper & Bros. Co., 1912. 403 p.

This is a very interesting and opportune work, composed of six parts by six different authors. Mr. Chubb treats of the festival in its educational, cultural and recreational aspects; P. W. Dykema of music in the festival; James Hall of art; M. R. Perrin, costuming; M. A. Allerton, dancing; M. R. Goodlander, the first steps in the development of festival and dramatic activity. There are a number of useful appendixes, an excellent bibliography and a number of interesting illustrations.

The evolution of educational theory, by John Adams. London, Macmillan & Co., Ltd., 1912. 410 p.

After a chapter on the nature and scope of educational theory, the author treats the data of education, the historical aspect of theory, prehistoric stage, the social and individual aim, scientific education, the educational organon, humanism, naturalism, the idealistic basis, the mechanical view, education outlook.

Current educational activities; a report upon education throughout the world, by John Palmer Garber. Philadelphia, J. B. Lippincott Co., 1912. 387 p. (Being the 1911 volume of "The Annals of Educational Progress.")

This work treats of recreation, defectives, physical education, developments directly affecting the public schools, also those that affect the various types of public schools, those that affect the higher institutions of learning, matters affecting the emoluments and professional standing of teachers, social, civil and religious problems, foreign educational interests, meetings, and education in several of the different states.

The outlines of educational psychology; an introduction to the science of education, by WILLIAM HENRY PYLE. Baltimore, Warwick & York, Inc., 1911. 254 p.

The chapters are on body and mind, heredity, instincts, individualistic tendencies, social instincts, environmental instincts, adaptive instincts, viz., play and imitation, habit and education, habit and moral training, memory, attention, fatigue.

Race suicide, by M. S. ISEMAN. New York, Cosmopolitan Press, 1912. 216 p.

This is an admirable compilation, and is in the opinion of the writer of this notice up to date the best little handbook of the whole subject. The author shows that reproduction is governed by food supply, points out the causes of infanticide in antiquity and now, shows how modern civilization is a Golgotha, tells us the ideals of the race, masculine modern sex emancipation, describes marriage in ancient times, the tragic subordination of woman in the past, laws of reproduction in animals and man, human prophylaxis, number of offspring needed, race suicide is classified and its history sketched in twenty countries. The attitude of the Christian Church, also of Mohammedans, Hawaiian Islanders, Mexicans, etc., is discussed, while the last chapter is devoted to the remedy, which the author thinks is largely further specific education of women.

Pädagogisch-psychologische Arbeiten, hrsg von PHIL. MAX BRAHN. Leipzig, Alfred Hahns, 1911. 204 S. (Veröffentlichungen des Instituts für experimentelle Pädagogik und Psychologie des Leipziger Lehrervereins, 11. Band.)

This volume contains an article by L. W. Jones on the investigations of the threshold stimulus for color saturation with children; one by S. H. Watkins on the relations between intelligence, learning and retention; one by R. Block on the practicability of the ergograph in measuring fatigue; and a fourth by A. Zieler on the daily rhythms in the physical achievements of students as affected by school instruction.

Experimentelle Untersuchungen zur Erkenntnis des Lernprozesses, von N. KRAEMER. Leipzig, Quelle & Meyer, 1912. 97 S. (Mit einem Anhang von E. Meumann.)

The most interesting part of this investigation is the effect of the understanding of the content upon its acquisition and here the author distinguishes philosophical narrative and descriptive prose. One interesting section is on secondary sentences and aids to the learning process.

Geschichte des Symbols, von MAX SCHLESINGER. Berlin, Leonhard Simion, 1912. 474 p.

This is a work of great importance to those interested in its field. The first introductory book is devoted to the nature and history of symbols, both in psychology, pathology and dream life. The second is devoted to the idea and its history and of symbology generally, including aesthetics; a third to various forms of its stages beginning with Antiquity, its use in Babylon, Ancient Israel, Greece, Rome, India, Africa, in religion in the Old and New Testament, in various arts. There is an interesting chapter on symbolism in language, names, poetic symbols and finally in human life so far as love, marriage, birth, etc., are concerned.

Essentials of psychology, by S. RADHAKRISHNAN. New York, Henry Frowde, 1912. 75 p.

The topics will suggest the scope of this book:—mind and brain, consciousness and nature, mental growth, sense perception, space and external reality, imagination, conception, feeling, emotions, voluntary action and attention.

Gesammelte Schriften, SAMUEL HEINICKE. hrsg von GEORGE und PAUL SCHUMANN. Leipzig, Ernst Wiegandt, 1912. 654 p.

Heinicke was born April 10, 1727, as a peasant and died in 1800. After a long and tragic struggle between his ideas and their fulfillment, he succeeded in making himself an authority upon the education of deaf mutes and was also known for his works on general pedagogy and also left behind a number of literary and philosophical works. These, together with his correspondence and various portraits, specimens of his handwriting, etc., are reproduced in many details from the original edition of his work, so that this consitutes a unique and valuable volume edited with German thoroughness and fidelity.

Report of the Commissioner of Education for the year ending June 30, 1911. Washington, Government Printing Office, 1912. Vol. 2, Whole No. 479, pp. 43 + 677 — 1407.

After an introductory survey, the topics treated are the common school system; universities, colleges, technical schools; agricultural, mechanical, professional, normal, summer, public, private, manual, industrial, commercial, business, state, industrial schools, and those for the blind, deaf, feeble minded; with concluding chapters on elementary education in foreign countries and the usual report on Alaska.

Two years course in English composition, by CHARLES LANE HANSON. Boston, Ginn & Co., 1912. 377 p.

This work provides abundant material for the first and second year in the high school. Part One gives many topics on which pupils have successfully talked and written, together with the essentials of composition, paragraph, sentence, spelling, letter writing. Part Two offers more ambitious practice in the construction of the paragraph and sentence. Part Three dwells on forms of prose.

Plane geometry, by WILLIAM BETZ and HARRISON E. WEBB. Boston, Ginn & Co., 1912. 332 p.

The excuse of the authors for adding another to the long list of existing geometry texts is a unique aim to effect a compromise between the extreme demands of certain reformers and the equally untenable position of conservative writers. The book seeks to endow the object with life and reality and aims to train the spirit of careful reasoning by the following features. A preliminary course precedes the demonstrative course. The latter is built up not only in a topical but in a psychological order. The methods embodied in the text aim to make the pupil independent of the printed page. The various types of exercises receive practically equal attention. The list of applied problems is extensive but not excessive, and finally, the text provides a major and a minor course.

Work and play with numbers, by GEORGE WENTWORTH and DAVID EUGENE SMITH. Boston, Ginn & Co., 1912. 144 p.

This text-book assumes that children love to play with numbers before they are ready for their study in arithmetic, and the age of entrance to school is too early for the latter. The book treats number work to ten, counting to one hundred, addition table, practice on it, numbers to one thousand with multiplication. The book is copiously illustrated.

The psychology of auto-education, by HARRIET E. HUNT. Syracuse, N. Y., C. A. Bardeen, 1912. 82 p.

The material of this book is presented from the standpoint of a practical teacher and not from that of a psychologist. The author was for some time principal of the training school in Scranton, Pa., where she demonstrated the possibility of so training teachers that their first attempts to teach children would be pedagogical. She professes indebtedness to Bergson, James and Montessori. The chapters treat the form of knowledge, the tendency to establish relations, the content of knowledge, developing consciousness, learning to teach from the standpoint of the tendency to establish relations, and the reorganization of a city school system based on auto-education.

A history of Indian shipping and maritime activity from the earliest times, by RADHAKUMUD MOOKERJI. New York, Longmans, Green & Co., 1912. 283 p.

This elaborate monograph is a history of the Sea-borne trade and maritime activity of the East Indians from the earliest times. It is evidently a work of great erudition, is copiously illustrated and doubtless of great value, although it lies hardly within the scope of the PEDAGOGICAL SEMINARY.

Fine and industrial arts in elementary schools, by WALTER SARGENT. Boston, Ginn & Co., 1912. 132 p.

During the last few years the amount of new subject-matter relating to the fine and industrial arts in elementary schools has greatly increased. The organization of this material into a form involving definite progression and reasonable standards of attainment at various stages has not wholly kept pace with its introduction. These considerations have led the author to his work. The chapters follow the grades from one to eight.

The people's school; a study in vocational training, by RUTH MARY WEEKS. Boston, Houghton, Mifflin & Co., 1912. 208 p. (Riverside Educational Monographs edited by Henry Suzzallo.)

The chief topics are: the hand of iron, the public school, the school for the plain man, trade education of the women in the country, trade education and organized labor, trade education and socialism, foreign trade schools, American experiments, type of trade school needed in the United States, choosing a vocation, conclusion, bibliography.

Vocational education, by CARROLL S. PAGE. Speech at 62nd Congress, second session, Document No. 845. Government Printing Office, Washington, 1912. 134 p.

This speech gives a comprehensive review of the organization in various states of vocational education, including the incidents of taxation and the modes and organizations of expending money.

Infant mortality, by Dr. HELEN MACMURCHY. Printed by order of The Legislative Assembly of Ontario. Toronto, L. K. Cameron, 1912. 75 p. (Third Report.)

Necessary basis of the teacher's tenure, by ANDREW SLOAN DRAPER. Syracuse, N. Y., C. W. Bardeen, 1912. 41 p.

Athletic handbook for the Philippine public schools. Manila, Bureau of Printing, 1911. Bulletin No. 40, 1911, Bureau of Education. 96 p.

Memorial relating to the conservation of human life as contemplated by Bill (S. I.) providing for a United States public-health service. Prepared by IRVING FISHER, assisted by Miss EMILY F. ROBBINS. Washington, Govt. Printing Office, 1912. 82 p. 62nd Congress, 2d Session, Document No. 493.

Ueber Psychologie und Psychopathologie des Kindes, von THEODOR HELLER. Wien, Hugo Heller & Cie, 1911. 110 p.

Genetic philosophy of education. An epitome of the published educational writings of President G. Stanley Hall of Clark University, by G. E. PARTRIDGE. New York, Sturgis & Walton Company, 1912. 401 p.

The golden treasury, by FRANCIS T. PALGRAVE. Edited for the use of schools by W. P. Trent and John Erskine. Boston, Ginn & Co., 1912. 466 p.

Report of the National Council of Education, Bengal, for 1909-10. Printed by R. Floris, Calcutta. (Variously paged.)

Report of the National Council of Education, Bengal, for 1911. Printed by H. P. Chakravarti. (Variously paged.)